South Florida Water Management District

Five-Year Water Resource Development Work Program

Fiscal Years 2002 – 2006

June 2002

Water Supply Department
South Florida Water Management District

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AKNOWLEDGEMENTS

This document provides a thorough and accurate description of the progress the South Florida Water Management District (SFWMD) has made on implementing the recommendations made in the regional water supply plans, as well as mapping out the direction of project implementation over the next five years. We would like to thank those that contributed to this document. Jane Bucca was the project manager responsible for producing this document. Chris Sweazy, Sharon Fowler, Kate Edgerton, and Susan Mason assisted Jane Bucca by updating the financial information and providing status updates on the recommendations from the four regional water supply plans. Matthew Morrison, the Division Director of Water Supply Planning and Development, and David Gilpin-Hudson provided direction and commentary. Kim Jacobs organized, formatted, and edited the report. Also, John Mulliken and Ken Ammon, the Deputy Director and Director, respectively, of the Water Supply Department, assisted with formulating the response to the Florida Department of Environmental Protection (FDEP). We would also like to thank Janet Llewellyn, Deputy Director of FDEP's Division of Water Resource Management for reviewing the document and making recommendations on its improvement.

LIST OF ACRONYMS AND ABBREVIATIONS

ASR	aquifer storage and recovery
CERP	Comprehensive Everglades Restoration Plan
CUP	consumptive use permitting
EAA	Everglades Agricultural Area
FAS	Floridan Aquifer System
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection
FTEs	full-time equivalents
F.S.	Florida Statutes
FY	fiscal year
IAS	Intermediate Aquifer System
KB	Kissimmee Basin
LEC	Lower East Coast
LEC Interim Plan	*Interim Plan for Lower East Coast Regional Water Supply*
LWC	Lower West Coast
MFLs	minimum flows and levels
MGD	million gallons per day
Miami-Dade WASD	Miami-Dade Water and Sewer Department
MIL	mobile irrigation lab
NRCS	National Resource Conservation Service
Restudy	*Central and Southern Florida Comprehensive Review Study*
SAS	Surficial Aquifer System
SFWMD	South Florida Water Management District
SJRWMD	St. Johns River Water Management District
SWFWMD	Southwest Florida Water Management District
TBD	to be determined
UEC	Upper East Coast
UIC	underground injection control
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
WCA	Water Conservation Area
WRDA 2000	Water Resource Development Act of 2000
WSE schedule	Water Supply and Environmental schedule

INTRODUCTION

The Water Resource Development Act of 2000 requires each water management district to prepare a five-year water resource development work program. This is the third such work program produced by the South Florida Water Management District (SFWMD). An initial work program document was prepared by the SFWMD in 1999 and an update was prepared in 2000 (SFWMD, 1999, 2000a). The dollar amounts and full-time equivalents (FTEs) presented within these documents represent the best estimate of how resources are expected to be allocated during implementation of the regional water supply plans over the next five years. These dollars and FTEs are subject to change as water managers reassess the SFWMD's needs during the annual budget process. This document also contains summaries and updates on the implementation of recommendations made in the regional water supply plans.

The *Upper East Coast (UEC) Water Supply Plan* (SFWMD, 1998a) was the SFWMD's first plan completed under the 1997 legislative modifications to Chapter 373, Florida Statutes (F.S.), and the Governor's Executive Order 96-297, which are further discussed in the Legal Basis of Water Supply Planning section of this report. The *UEC Water Supply Plan* was approved by the SFWMD's Governing Board in February 1998. In April 2000, the Governing Board approved regional water supply plans for the Kissimmee Basin (KB) and the Lower West Coast (LWC) (SFWMD, 2000b, 2000c). The *Lower East Coast (LEC) Regional Water Supply Plan* (SFWMD, 2000d) was approved in May 2000. Each plan was formulated to reflect the particular needs of one of four regional planning areas within the SFWMD (**Figure 1**). The recommendations in each plan were developed by SFWMD staff and advisory committees composed of local, state, and federal agency staff and representatives from interests and affected organizations in each region. This report details the time frames and costs allocated to implement each plan.

Document Organization

In the previous *Five-Year Water Resource Development Program* (SFWMD, 2000a), the water resource development projects recommended by the regional water supply plans were discussed by planning area. For the most part, this document is organized in the same manner, but a section on districtwide efforts has been added to discuss those projects affecting all or several of the planning areas that are budgeted as districtwide activities. Many of these activities are also discussed in the planning area sections, but the costs are included in the districtwide section total, not the planning area totals.

Because each planning area has unique characteristics, the regional water supply plans were structured differently. In this document, the discussions of water resource development recommendations and projects for each planning area are organized as they were in each respective plan. The UEC and LWC sections are organized based on water source options. The KB section is organized on the basis of strategies and associated water resource development recommendations with three strategies for the Orange-Osceola County area, and two for the Lake Istokpoga-Indian Prairie basin. Water resource development recommendations in the LEC section are grouped by the scope, nature, and funding sources of the proposed projects.

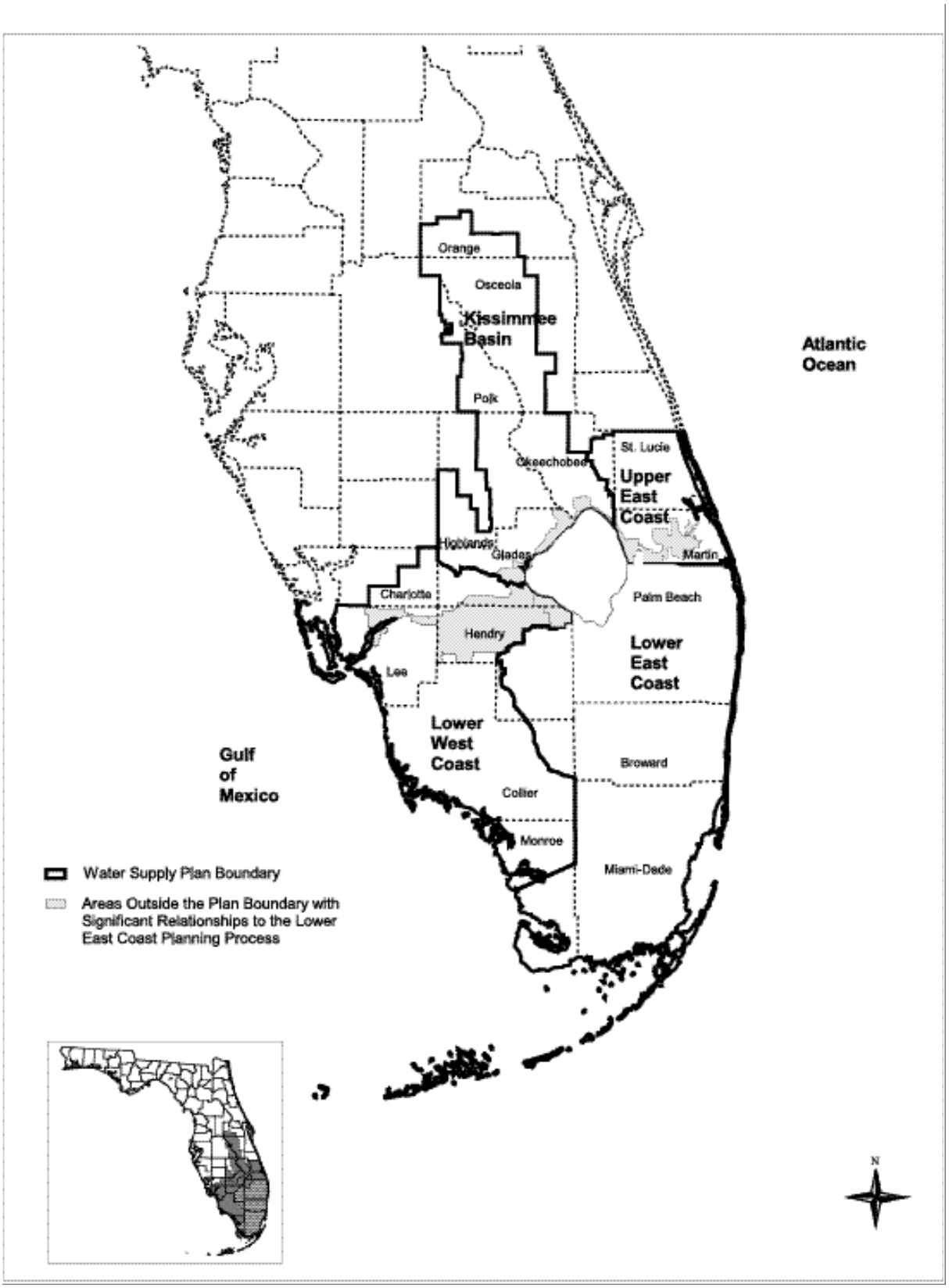

Figure 1. Water Supply Planning Areas within the SFWMD

Each category of recommendations includes a description and general listing of included water resource development projects and activities. Costs to nonfederal entities (primarily the SFWMD), estimates of total SFWMD staff time required in FTEs, and a funding schedule by fiscal year are presented in a table at the end of each section. A 40 hours per week work effort by one person for a period of 52 weeks is represented by 1 FTE. Estimates of the total amounts of water provided by the recommendations (to the extent these can be determined) are provided, along with funding sources and implementing agencies. Water resource development categories and projects are numbered to correspond with the numbered categories and recommendations in each regional water supply plan document. Recommendations from the *Caloosahatchee Water Management Plan* (SFWMD, 2000e) are listed in the LWC section.

A summary of the SFWMD's funding needs and sources is provided in the section following the plan sections. Total costs are presented for both the five-year period of FY 2002 through FY 2006 and for the current fiscal year, FY 2002.

The final section contains comments from the Florida Department of Environmental Protection (FDEP) on the draft of this document and the SFWMD's responses to these comments. Comments were incorporated into the document where applicable.

Time Frames and Total Costs

The time frames for this *Five-Year Water Resource Development Program* are from the SFWMD's fiscal years beginning October 1, 2001, and ending September 30, 2006. Total costs for this period for all the recommendations or strategies for each individual plan can be found in a table at the end of each section. Many Comprehensive Everglades Restoration Plan (CERP) projects and two other activities (water conservation and assessment of the effects of water level drawdowns on wetlands) span the boundaries of multiple planning areas. These projects are discussed in a separate section that precedes the planning area discussions.

In some cases, actual costs shown in this document for Fiscal Year (FY) 2002 year may differ from the published cost figures in the water supply plans. The differences between plan numbers and those in this report can be attributed to refinement of the planning and development level costs during the budget process and identification of cost-share partners. The costs presented in this work program document are consistent with the FY 2002 budget.

LEGAL BASIS OF WATER SUPPLY PLANNING AND DEVELOPMENT

The SFWMD is charged by the Florida Legislature with managing water use in South Florida. One important task in this charge is planning to meet future water demand. In partial fulfillment of this requirement, the SFWMD has prepared regional water supply plans. Water supply planning and development activities were first required of the state's water management districts following adoption of the Florida Water Resources Act of 1972 (Chapter 373, F.S.). During the 1997 legislative session, significant amendments were made to the Water Resources

Act. The amendments clarified agency responsibilities related to regional water supply planning and development and included many of the provisions of the Governor's Executive Order 96-297. The executive order provides direction to Florida's water management districts in the establishment and implementation of minimum flows and levels (MFLs) and the development of regional water supply plans where sources are not adequate to meet future demands.

The SFWMD has undertaken a water supply planning and development initiative to ensure prudent management of South Florida's water resources. The SFWMD has committed to an overall water resources goal. This goal is derived from the State Comprehensive Plan (Section 187.101 (8)a, F,S.), which states:

> Florida shall assure the availability of an adequate supply of water for all competing uses deemed reasonable and beneficial and shall maintain the functions of natural systems and the overall present level of surface and ground water quality. Florida shall improve and restore the quality of waters not presently meeting water quality standards.

Statutory mandates for planning and development by the water management districts, in cooperation with the FDEP, are found in several sections of Chapter 373, F.S. One of these sections, 373.036(1), F.S., requires FDEP to develop a Florida water plan in cooperation with the water management districts, regional water supply authorities, and others. The Florida water plan includes, but is not limited to, the following items:

- The programs and activities of the FDEP related to water supply, water quality, flood protection and floodplain management, and natural systems
- The water quality standards of the FDEP
- The district water management plans
- Goals, objectives, and guidance for the development and review of programs, rules, and plans relating to water resources, based on statutory policies and directives (the State Water Policy, renamed the Water Resource Implementation Rule pursuant to section 373.019(20), F.S., shall serve as this part of the plan [Chapter 62-40, Florida Administrative Code])

Regional water supply planning and development is mandated under section 373.0361(1), F.S. This statute provides, in part, the following:

> By October 1, 1998, the governing board shall initiate water supply planning for each water supply planning region identified in the district water management plan under section 373.036, where it determines that sources of water are not adequate for the planning period to supply water for all existing and projected reasonable-beneficial uses and to sustain the water resources and related natural systems.

Each regional water supply plan shall be based on at least a 20-year planning and development period and shall include, but not be limited to the following components:

- A water supply development component
- A water resource development component

- A recovery and prevention strategy for addressing attainment and maintenance of MFLs in priority water bodies
- A funding strategy for water resource development projects that shall be reasonable and sufficient to pay the cost of constructing or implementing all of the listed projects
- Consideration of how the options addressed serve the public interest or save costs overall by preventing the loss of natural resources or avoiding greater future public expenditures for water resource development or water supply development (unless adopted by rule, these considerations do not constitute final agency action)
- The technical data and information applicable to the planning area that are contained in the *District Water Management Plan* (SFWMD, 2000f) and necessary to support the regional water supply plans
- The MFLs established for water resources within the planning area

Under Section 373.0361(5), F.S., the FDEP is mandated to submit an annual report on the status of regional water supply planning and development in each district to the governor and the legislature. The report is to contain a compilation of the estimated costs, potential sources of funding for water resource development and water supply development projects, as identified in the water management district regional water supply plans. It must also contain a description of each district's progress toward achieving its water resource development objectives, including progress toward completion of a five-year water resource development work program.

Section 373.536(6)(a)4, F.S., mandates the preparation of a proposed five-year water resource development work program by each water management district. The work program must describe the district's implementation strategy for the water resource development component of each approved regional water supply plan developed or revised pursuant to Section 373.0361, F.S. It is also required to address all the elements of the water resource development component in the district's approved regional water supply plans. This five-year water resource development work program is to be submitted to the Executive Office of the Governor, which, with the assistance of the FDEP, shall review the proposed work program for consistency, furtherance of the approved regional water supply plans, and the adequacy of the proposed expenditures.

STATUTORY DEFINITION OF WATER RESOURCE DEVELOPMENT AND WATER SUPPLY DEVELOPMENT

The regional water supply plans recommended the implementation of projects and actions from two categories: water resource development projects and water supply development options. This is in concert with amendments to Chapter 373, F.S., that were passed in 1997, which require that water supply plans include a water resource development component and a list or menu of water source options for water supply development that can be chosen by local water users. The statute defines water resource development and water supply development as follows:

> 'Water resource development' means the formulation and implementation of regional water resource management strategies, including the collection and evaluation of surface water and ground water data; structural and nonstructural programs to protect and manage water resources; the development of regional water resource implementation programs; the construction, operation, and maintenance of major public works facilities to provide for flood control, surface and underground water storage, and ground water recharge augmentation; and related technical assistance to local governments and to government-owned and privately owned water utilities.
>
> 'Water supply development' means the planning, design, construction, operation, and maintenance of public or private facilities for water collection, production, treatment, transmission, or distribution for sale, resale, or end use.

In addition to the legislative definitions described above, the designation of a component as a water resource development project was based on it having the following characteristics:

- Has the opportunity to address more than one resource issue
- Addresses a variety of use classes (e.g., environment, public water supply)
- Protects/enhances resources available for allocation
- Moves water from water surplus areas to water deficit areas
- Has a broad application of technology

The equivalent characteristics that led to designations of projects as water supply development options are as follows:

- Requires localized implementation of technology
- Delivers resources to consumers
- Has regionalized interconnects to consumer

The SFWMD is primarily responsible for the implementation of the water resource development components, which include projects that make additional quantities of water available, as well as projects that have other direct objectives. Local users have primary responsibility for water supply development by choosing the water source options that will best meet their needs.

INFORMATIONAL UPDATE ON RECOMMENDATIONS AND PROJECTS IDENTIFIED IN REGIONAL WATER SUPPLY PLANS

The following sections provide summaries of the results of each of the water supply planning and development efforts in the SFWMD. The districtwide efforts are presented first, followed by the planning areas. The planning area information is presented from north to south, beginning with the Kissimmee Basin.

Districtwide Water Resource Development Efforts

Five programs developed districtwide are the Wetland Drawdown Study, the Comprehensive Water Conservation Program, Mobile Irrigation Labs (MILs), Critical Projects, and the CERP. Some water supply plans include recommendations for these programs, but at this time budgeting and funding for these programs is being done on a districtwide basis. The MILs have been included in the Comprehensive Water Conservation Program and the Critical Projects have been incorporated into the CERP. The schedule and costs to implement the Wetland Drawdown Study, the Comprehensive Water Conservation Program, and the MILs over the next five fiscal years are summarized in **Table 1**. The Critical Projects are listed in **Table 2**. The CERP schedule and costs are listed in **Table 3**.

Wetland Drawdown Study

The Wetland Drawdown Study will be used to develop new criteria for the resource protection criteria associated with the Consumptive Use Permitting (CUP) Program. Long-term wetland monitoring sites have been established, monitoring wells and weather stations have been installed, historical aerial photographs have been analyzed, biological inventories have been completed, and an interim technical publication has been completed. The total cost for FY 2001 to FY 2003 is $335,000 and 4 FTEs (**Table 1**). The study should be completed by 2003.

Comprehensive Water Conservation Program

One of the most significant districtwide projects is the development of the Comprehensive Water Conservation Program. The program will further public education, assist utilities in developing their own conservation programs, establish numeric efficiency goals, and develop a districtwide conservation plan. In 2001, the SFWMD established a water conservation section containing 8 FTEs and initiated the development of the Comprehensive Water Conservation Program. The program incorporates the use of retrofit conservation measures, Xeriscape™, and public education. During the next five years, the SFWMD will spend $1.75 million and 30 FTEs on developing the Comprehensive Water Conservation Program (**Table 1**).

In addition, providing cost-share funding for maintaining and establishing MILs has been incorporated into the Comprehensive Water Conservation Program. Each MIL completes 140

evaluations per year, with a potential water savings of 50 to 60 million gallons of water per year and an associated reduction in lawn chemicals and fertilizers leaving the site as runoff. Collier, Lee, Hendry, Miami-Dade, Palm Beach, Martin, St. Lucie, Glades, Charlotte, and Okeechobee Counties participate in the districtwide MIL Program. During the next five years, the SFWMD anticipates spending $1.97 million and 2 FTEs on the MILs, bringing the total funding for the Comprehensive Water Conservation Program to $3.72 million and 32 FTEs (**Table 1**).

Table 1. Funding for Districtwide, non-CERP Efforts during FY 2002 - FY 2006.

Comprehensive Districtwide Water Resource Development Efforts	Districtwide Implementation Costs ($1,000s and FTEs)											
	FY 2002		FY 2003		FY 2004		FY 2005		FY 2006		Total Cost FY 2001-FY 2006	
	$	FTE	$	FTE	$	FTE	$	FTE	$	FTE	$	FTE
Conduct a wetland drawdown study	165	2.00	170	2.00	Complete						335[a]	4.00
Develop a comprehensive water conservation program	250	7.50	500	7.50	500	7.50	500	7.50	TBD[b]	TBD	1,750	30.00
Provide cost-share funding for MILs	467	0.50	500	0.50	500	0.50	500	0.50	TBD	TBD	1,967	2.00
TOTAL	**882**	**10.0**	**1,170**	**10.0**	**1,000**	**8.00**	**1,000**	**8.00**	**0**	**0**	**4,052**	**36.00**

a. Does not include long-term monitoring
b. TBD = To be determined

Comprehensive Everglades Restoration Plan

The SFWMD is the nonfederal sponsor of a vast environmental restoration project that is an overhaul of the Central and Southern Florida Project. The original project was built in the 1950s and 1960s by the United States Army Corps of Engineers (USACE) (USACE and SFWMD, 1999). The CERP itself is a 38-year effort with elements in all four planning areas. Most of these elements are scheduled to be complete by 2020. All of the CERP elements in the LEC planning area and some of the elements in the LWC planning area were addressed in those regional water supply plans, but for the purposes of this document, they are discussed as districtwide projects.

Included in the CERP are several Critical Projects. Critical Projects are authorized by Section 528 of the Water Resource Development Act of 1996. The purpose of the Critical Project Program was to develop specific water quality related projects that are essential to the restoration of the South Florida natural systems. While these projects are now considered part of the CERP they are listed separately in **Table 2**.

Table 2. Nonfederal Funding for Critical Projects during FY 2002 - FY 2006

Critical Projects	Districtwide Implementation Costs ($1,000s and FTEs)											
	FY 2002		FY 2003		FY 2004		FY 2005		FY 2006		Total Cost FY 2002-FY 2006	
	$	FTE	$	FTE	$	FTE	$	FTE	$	FTE	$	FTE
Ten Mile Creek Critical Project	4,034	0.70	4,755	0.83	1,330	0.23	Complete				10,119	1.76
Tamiami Trail Culverts (West) Critical Project	1,895	0.50	1,345	0.35	1,237	0.33	Complete				4,477	1.18
Western C-4 Structure Critical Project	546	0.15	Complete								546	0.15
Southern CREW Project Addition	11,795	2.75	1,823	2.00	22	1.00	Complete				13,640	5.75
Lake Trafford Restoration	2,723	1.20	2,265	1.00	2,788	1.23	Complete				7,776	3.43
Lake Okeechobee Water Retention/Phosphorus Removal	5,544	6.35	107	0.12	63	0.07	Complete				5,714	6.54
Western C-11 (S-9) Water Quality	3,419	0.20	Complete								3,419	0.20
Critical Restoration Program Controls	36	0.45	32	0.40	29	0.36	Complete				97	1.21
TOTAL	**29,992**	**12.30**	**10,327**	**4.70**	**5,469**	**3.22**	**0**	**0.00**	**0**	**0.00**	**45,788**	**20.22**

The remaining CERP components that have activity (funds or FTEs expended) in the FY 2002 to FY 2006 time period are shown in **Table 3**. The tables include the SFWMD cost of each element, with the understanding that each CERP element is a 50-50 cost share with the USACE. Tables include the nonfederal share of the projects' costs with the understanding that there may be local cost sharing for certain projects. More detailed information about each element is available from several sources. Element descriptions are available in the *Central and Southern Florida Project Comprehensive Review Study Final Integrated Feasibility Report and Programmatic Environmental Impact Statement* (USGS and SFWMD, 1999), referred to as the Restudy, and the *Master Program Management Plan* (USACE and SFWMD, 2000). Schedule information is available in the *CERP Master Implementation Schedule, Update 1.0* (USACE and SFWMD, 2001).

Districtwide Water Supply Development Efforts

Any discussion of the SFWMD's efforts in water conservation and reuse would be incomplete without including projects funded by the Alternative Water Supply Grant Program. Though not a component of the water resource development work plan, reuse efforts have been significant. Since 1997, SFWMD funded a total of $22 million in alternative water supply projects, with $16.6 million of these funds spent on reuse projects.

Table 3. Nonfederal Funding for CERP Projects during FY 2002 - FY 2006.

Project Name	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	Total FY 2002-FY 2006
Lake Okeechobee Aquifer Storage and Recovery (ASR) Pilot Project	2,905,275	0	0	0	0	2,905,275
Caloosahatchee River ASR Pilot Project	118,666	91,054	172,099	0	0	381,819
Western Hillsboro ASR Pilot Project	239,883	0	264,274	0	0	504,157
Lake Belt In-Ground Reservoir Technology Pilot Project	111,636	421,327	267,688	295,120	6,923	1,102,694
L-31N Seepage Management Pilot Project	221,970	75,297	56,923	0	0	354,190
Wastewater Reuse Technology Pilot Project	72,974	763,859	218,333	225,000	1,045,000	2,325,166
Lake Okeechobee Watershed Project	267,344	1,006,526	639,375	636,935	258,678	2,808,858
North of Lake Okeechobee Storage Reservoir	0	19,042,386	62,636,739	62,397,668	40,215,323	184,292,116
Taylor Creek/Nubbin Slough Storage and Treatment Area	0	5,726,717	13,387,923	479,662	514,158	20,108,460
Lake Okeechobee Watershed Water Quality Treatment Facilities	0	1,638,403	4,769,574	4,751,369	3,186,004	14,345,350
Lake Okeechobee Tributary Sediment Dredging	0	194,982	567,613	82,326	23,100	868,021
Lake Istokpoga Regulation Schedule Project	58,795	7,277	8,929	0	0	75,001
Lake Okeechobee ASR Project	0	0	0	0	0	0
C-43 Basin Storage Reservoir Project	165,411	899,469	13,504,541	19,510,287	19,371,671	53,451,379
Caloosahatchee Backpumping with Stormwater Treatment Project	0	0	0	191,580	514,800	706,380
Southwest Florida Study	2,345,000	1,345,000	864,000	242,000	0	4,796,000
Indian River Lagoon Project	191,455	0	0	0	0	191,455
C-44 Basin Storage Reservoir	18,000,000	8,593,815	471,468	18,214,923	18,108,927	63,389,133
C-23, C-24 Storage Reservoirs	32,648,136	50,604,049	37,319,109	9,726,879	3,321,026	133,619,199
C-25, and North and South Fork Storage Reservoir		1,141,386	5,654,749	5,803,222	4,272,895	16,872,252
Everglades Agricultural Storage Reservoir Project, Part 1	248,687	3,618,803	3,041,231	797,887	0	7,706,608
Everglades Agricultural Storage Reservoir Project, Part 2	0	0	1,154	606,886	902,200	1,510,240
Big Cypress/L-28 Interceptor Modifications Project	0	0	0	153,910	338,857	492,767
G-404 Pump Station Modifications	0	0	201	52,451	52,117	104,769
Flows to Northwest and Central Water Conservation Area (WCA) 3A	0	310,919	325,992	107,161	106,475	850,547
WCA 3 Decompartmentalization and Sheetflow Enhancement Project, Part 1	824,816	349,367	310,398	147,145	55,650	1,687,376
WCA 3 Decompartmentalization and Sheetflow Enhancement Project, Part 2	0	0	0	0	116,538	116,538
Loxahatchee National Wildlife Refuge Internal Canal Structures Project	0	29,652	101,575	335,743	34,712	501,682
Modify Holey Land Wildlife Management Area Operation Plan Project	0	0	16,731	16,731	16,667	50,129
Modify Rotenberger Wildlife	0	0	21,094	33,984	19,922	75,000

Project Name	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	Total FY 2002-FY 2006
Management Area Operation Plan Project						
North Palm Beach County Project, Part 1	2,469,587	3,260,424	1,464,038	0	0	7,194,049
Pal Mar and J.W. Corbett Wildlife Management Area Hydropattern Restoration	0	0	1,358,969	698,460	2,637,027	4,694,456
L-8 Basin Modifications	0	0	81,640	1,307,802	1,237,613	2,627,055
C-51 and Southern L-8 Reservoir	0	0	666,289	21,399,563	1,288,660	23,354,512
Lake Worth Lagoon Restoration	0	0	97,665	170,238	72,596	340,499
C-17 Backpumping and Treatment	0	0	1,292	84,323	5,232,467	5,318,082
C-51 Backpumping and Treatment	0	0	6,712,832	6,859,454	105,583	13,677,869
Acme Basin B Discharge	102,537	190,560	82,788	22,615	0	398,500
Strazzula Wetlands Water Preserve Area Project	2,324,377	11,424	0	0	0	2,335,801
Hillsboro Impoundment Water Preserve Area Project	63,208	338,455	66,618	3,763	0	472,044
WCA 3A and 3B Levee Seepage Management	168,477	16,366,531	16,184,598	3,800	0	32,723,406
C-11 Impoundment	61,033,760	1,335,881	1,119	0	0	62,370,760
Western C-11 Diversion Impoundment and Canal	0	150,001	0	0	0	150,001
North New River Impoundments (U.S. 27 Conveyance)	0	22,671,580	241,080	182,887	125,137	23,220,684
C-9 Impoundment	4,700,119	854,307	45,692	0	0	5,600,118
Dade-Broward Levee and Canal	148,470	3,820,711	3,774,292	19,771	0	7,763,244
C-4 Structures	0	38,614	20,661	3,725	0	63,000
Bird Drive Recharge Area	2,000,000	2,000,000	2,000,000	2,000,000	2,091,154	10,091,154
Palm Beach County Agriculture Reserve Reservoir Project	3,000,000	2,000,000	11,178,419	8,338,041	199,450	24,715,910
Broward County Secondary Canal System Project	22,980	218,079	56,935	51,602	27,404	377,000
Everglades National Park Seepage Management Project	0	0	0	0	91,154	91,154
Biscayne Bay Coastal Wetlands Project	3,542,095	1,185,001	1,346,654	3,113,104	3,301,167	12,488,021
C-111N Spreader Canal Project	291,189	691,749	200,531	189,992	116,838	1,490,299
Southern Golden Gate Estates Restoration Project	282,023	39,390	61,069	6,790	0	389,272
Florida Keys Tidal Restoration Project	44,526	32,023	0	0	0	76,549
ASR Regional Study	3,500,224	3,500,224	3,513,634	3,500,224	3,486,813	17,501,119
Reconnaissance, Feasibility, Planning Studies	2,876,103	1,419,569	1,632,988	672,836	639,607	7,241,103
Monitoring and Evaluation (RECOVER)	5,095,635	4,772,039	4,952,741	4,933,837	4,914,934	24,669,186
Program Management and Support	27,630,489	0	0	0	0	27,630,489
TOTAL	**177,715,847**	**160,756,850**	**200,364,257**	**178,371,696**	**118,049,247**	**835,257,897**

2000 Kissimmee Basin Water Supply Plan

Plan Organization

An evaluation of the demands and water resources for the Kissimmee Basin (KB) planning area suggests that the ground water supplies may not be sufficient to meet the 2020, 1-in-10 year drought, water supply needs of the planning area. In addition, the SFWMD is required to ensure that it is in compliance with the Seminole Water Rights Compact among the Seminole Tribe of Florida, the State of Florida, and the SFWMD. The compact entitles the Brighton Seminole Tribe to 15% of the total amount of water that can be withdrawn from SFWMD canals and access to a fractional share of surface waters from Lake Okeechobee for use on lands of the reservation within the Lakeshore Perimeter Basin.

In the *Kissimmee Basin (KB) Water Supply Plan* (SFWMD, 2000b), the SFWMD identified 14 recommendations that seek to develop facilities to provide alternative sources of water. The recommendations are organized in this plan into three groupings: those pertaining to the Orange-Osceola County area, those pertaining to the Lake Istokpoga-Indian Prairie Basin area, and related implementation strategies that apply to both areas. An examination of the identified options indicates that these groupings can be further subdivided based upon the approach or strategy that each takes in trying to address possible harm to the resource. Seven strategies were identified in this plan:

Orange-Osceola County Strategies

1. Minimize Floridan aquifer drawdown through recharge
2. Minimize Floridan aquifer drawdown through reduction of demands
3. Optimize use of the Floridan aquifer and develop alternative sources

Lake Istokpoga-Indian Prairie Basin Strategies

4. Develop alternative water resources
5. Develop a water management plan for the Lake Istokpoga-Indian Prairie basin

Related Strategies

6. Coordination among water management districts
7. Ensure consistency between planning and development and water use permitting both internally and between the water management districts

Information Provided

The summary of each of the seven strategies includes a description, a list of recommendations, funding sources, implementing agencies, costs to nonfederal entities (primarily the SFWMD), and estimates of total SFWMD staff time required in FTEs to implement the option. The schedule and costs to implement the recommendations in the *KB Water Supply Plan* over the next five fiscal years are summarized in **Table 4** at the end of this section. In addition, estimates

are provided (to the extent this can be determined) of the amount of water that will be made available for each recommendation in **Table 5**, also at the end of this section.

Strategies and recommendations are identified by a numbering system that corresponds to that used in the *KB Water Supply Plan*. For each option, a description is provided of changes in the plan scope or implementation that have occurred during the past year since the last *Five-Year Water Resource Development Work Program* report (SFWMD, 2000a) was published.

Strategies and Recommendations

Orange-Osceola County Area

Strategy 1. Minimize Floridan Aquifer Drawdown through Recharge

Description/Discussion

This strategy involves reducing the amount of projected drawdown on the Floridan aquifer by placing more water into the aquifer to replenish the amount removed. The identified sources for this recharge are reclaimed water and stormwater. To minimize Floridan aquifer drawdown through recharge, wastewater and stormwater reuse, reservoirs, drainage wells, and aquifer storage and recovery (ASR) options were investigated. Evaluation of these options requires the utilization of numerical models and the collection of hydrologic information for the construction of these models.

Recommendations

1.1. Develop a regional reclaimed water optimization plan
1.2. Develop stormwater reuse master plans

Total Costs of Projects/Recommendations

The total costs of projects/recommendations associated with minimizing Floridan aquifer drawdown through recharge are approximately $1.4 million, with 3.8 FTEs, for the period from FY 2002 through FY 2006.

Quantity of Water Potentially Available

See **Table 5** for the quantity of water potentially available by FY 2002 and by FY 2006.

Funding Sources

- Regional Reclaimed Water Optimization Plan - SFWMD, United States Geological Survey (USGS), and local governments
- Stormwater reuse master plans - SFWMD and local governments

Implementing Agencies

- Regional Reclaimed Water Optimization Plan – SFWMD, USGS, FDEP, and local governments
- Stormwater reuse master plans – SFWMD and local governments

Summary of Changes/Implementation from the Previous Work Program

Develop a Regional Reclaimed Water Optimization Plan. During FY 2001, the SFWMD initiated four projects towards developing a regional reclaimed water optimization plan for a total of $250,500. These projects included installation of climatic and shallow aquifer monitoring stations and Phase I of the Reclaimed Water Injection Pilot Study. Activities proposed for FY 2002 include a continuation of the climate and ground water level monitoring and Phase II of the Reclaimed Water Injection Pilot Study. New programs for FY 2002 will include a lakes monitoring effort and the reuse master plan. Total funding proposed for Recommendation 1.1 for FY 2002 is $565,000 and 1.45 FTEs.

Develop Stormwater Reuse Master Plans. During FY 2001, the SFWMD continued its funding of the Artificial Recharge Project ($30,000) and began implementing Phase I of the Drain Well Treatment Pilot Project ($80,000). Both of these projects are expected to continue in FY 2002. The development of the stormwater drainage plans will also be initiated in FY 2002.

Strategy 2. Minimize Floridan Aquifer Drawdown through Reduction of Demands

Description/Discussion

Urban and agricultural conservation and reuse can minimize drawdown on the Floridan aquifer. An improved districtwide Comprehensive Water Conservation Program was recommended and is being implemented. This program will further public education, assist utilities to develop their own customized water conservation programs, and establish numeric efficiency goals that are cost-effective and achievable.

Recommendations

2.1. Develop a comprehensive water conservation program

Total Costs of Projects/Recommendations

The total cost of this effort will be divided each year among all four regional water supply planning and development efforts. The districtwide total costs of projects/recommendations associated with water conservation are presented in **Table 1** in the Districtwide Efforts section.

Quantity of Water Potentially Available

See **Table 5** for the quantity of water potentially available by FY 2002 and by FY 2006.

Funding Sources

The SFWMD is funding the development of the Comprehensive Water Conservation Program.

Implementing Agencies

The SFWMD and local governments are implementing the development of the Comprehensive Water Conservation Program.

Summary of Changes/Implementation from the Previous Work Program

For the status of the implementation of the Comprehensive Water Conservation Program, see the Districtwide Water Resource Development Efforts section.

Strategy 3. Optimize Use of the Floridan Aquifer and Develop Alternative Sources

Description/Discussion

Alternative water source options identified in the *KB Water Supply Plan* include reclaimed water, surface water, brackish ground water, and additional fresh ground water. Technical and resource-based issues will be evaluated to quantify the availability of surface water resources in the planning and development area. The collection of the necessary hydrologic information and development of models will be performed to accurately identify resource concerns and determine the optimized use of the Floridan aquifer.

Recommendations

3.1. Research and develop alternative water supplies
3.2. Determine the optimized use of the Floridan aquifer

Total Costs of Projects/Recommendations

The total costs of projects/recommendations associated with optimizing the use of the Floridan aquifer and developing alternative water supply sources are approximately $2.77 million, with 11.75 FTEs, for the period from FY 2002 through FY 2006.

Quantity of Water Potentially Available

See **Table 5** for the quantity of water potentially available by FY 2002 and by FY 2006.

Funding Sources

The SFWMD will fund both recommendations, with local governments assisting with the second recommendation.

Implementing Agencies

The SFWMD will implement both recommendations, with local governments assisting with the second recommendation.

Summary of Changes/Implementation from the Previous Work Program

Research and Develop Alternative Water Supplies. The SFWMD applied $500,000 and 2 FTEs towards implementation of this recommendation during FY 2002. For FY 2003 through FY 2005, the SFWMD plans on spending $100,000 and 1 FTE per year. The project will be completed in FY 2005.

Determine the Optimized Use of the Floridan Aquifer. The construction of six deep Floridan aquifer wells was initiated in FY 2001 as part of the hydrologic investigations identified under this recommendation. The total cost for these wells for FY 2001 totaled $2.7 million and was shared among the KB and LEC planning areas. In addition, efforts were coordinated with the Southwest Florida Water Management District (SWFWMD) and the St. Johns River Water Management District (SJRWMD) to share information. The SFWMD and the SJRWMD have agreed to use the East Central Florida Model as a basis for future regional water supply planning in Orange, Osceola, and Polk Counties. Construction will continue on all of these wells in FY 2002 costing the SFWMD $520,000 and 2 FTEs. During FY 2003, the SFWMD plans on increasing funding for this project to $800,000 and 2.25 FTEs. Funding for this project will then decrease each year during FY 2004 and FY 2005 and be completed in FY 2005 with a total cost of $1.97 million and 6.75 FTEs.

Lake Istokpoga-Indian Prairie Basin

Strategy 4. Develop Alternate Water Resources

Description/Discussion

Alternative water resources, including Lake Okeechobee, the Kissimmee River, and additional ground water, will be developed for the KB planning area. An operational plan to operate two or more pumps to move water from Lake Okeechobee to the KB planning area was initially proposed for development. Also, the *KB Water Supply Plan* proposed identifying the availability of supplies from the Kissimmee River as a result of the restoration efforts.

Recommendations

4.1. Develop an operational plan for backpumping from Lake Okeechobee
4.2. Investigate the availability of water from the Kissimmee River

Total Costs of Projects/Recommendations

The SFWMD has determined that these projects are not feasible at this time. Therefore, no funds or FTEs are currently allocated to these recommendations. However, these recommendations will be reconsidered during the next plan update in FY 2005.

Quantity of Water Potentially Available

See **Table 5** for the quantity of water potentially available by FY 2002 and by FY 2006.

Funding Sources

At this time, no funding will be allocated to these projects.

Implementing Agencies

At this time, these projects will not be implemented.

Summary of Changes/Implementation from the Previous Work Program

Develop an Operational Plan for Backpumping from Lake Okeechobee. The current modeling efforts associated with the LEC water supply planning process and the CERP are being updated and may consider demands placed on Lake Okeechobee from backpumping. Until this modeling is completed, water managers can not commit additional water from Lake Okeechobee.

Investigate the Availability of Water from the Kissimmee River. The water management district needs to complete a study on the water needs for restoration of the Kissimmee

River and determine if and when water for other allocations, including consumptive use, will be available.

Strategy 5. Develop a Water Management Plan for the Lake Istokpoga-Indian Prairie Basin

Description/Discussion

A water management plan needs to be developed for the Lake Istokpoga-Indian Prairie basin. The plan should evaluate lifting of the moratorium on use of additional surface water from the Indian Prairie basin by resolving issues related to the current regulation and minimum operation schedules, and establishing a minimum level for Lake Istokpoga. An operational plan for control structures on the lake must be developed. Also, regional storage needs to be evaluated as part of the CERP initiative.

Recommendations

5.1. Develop a water management plan for the Lake Istokpoga-Indian Prairie basin
5.2. Evaluate regional storage

Total Costs of Projects/Recommendations

During FY 2002 and FY 2003, 1 FTE has been allocated to each of the projects/recommendations within this strategy, for a total of 4 FTEs. Beginning in FY 2004, these two projects will be incorporated into the Lake Istokpoga Regulation Schedule Project, which is part of the CERP.

Quantity of Water Potentially Available

See **Table 5** for the quantity of water potentially available by FY 2002 and by FY 2006.

Funding Sources

These recommendations will be funded through the CERP. The agencies that may potentially fund the projects are as follows: SFWMD, SWFWMD, FDEP, USACE, and local governments.

Implementing Agencies

- Water management plan development - SFWMD and USACE
- Regional storage evaluation - SFWMD and SWFWMD

Summary of Changes/Implementation from the Previous Work Program

Development of the Water Management Plan. The SFWMD postponed work on the development of the management plan during FY 2001 to allow for overlapping efforts under the CERP to be coordinated. The MFL list was updated to include establishing a minimum level for Lake Istokpoga by 2004. During FY 2002 and FY 2003, 1 FTE has been assigned to the development of the water management plan. The USACE is evaluating a regulation schedule that will be used as a component of this plan. This effort and others related to the evaluation of the Istokpoga regulation schedule will be addressed under CERP-related efforts beginning in FY 2004.

Evaluate Regional Storage. Although no scheduled activity was proposed in the *KB Water Supply Plan* for this recommendation during FY 2001, the SFWMD initiated studies in conjunction with the SWFWMD to study the fate of organisms in ASR. Efforts for FY 2001 were $80,000 and were applied as part of the *LEC Regional Water Supply Plan* (SFWMD, 2000d). These studies and deep well drilling will be coordinated with the SWFWMD in FY 2002.

Related Strategies

Strategy 6. Coordination among Water Management Districts

Description/Discussion

The SFWMD will coordinate with the SJRWMD, the SWFWMD, and the FDEP for the purpose of maximizing consistent criteria and approaches concerning the following: resource protection criteria, hydrologic investigations, improved hydrologic modeling, local sources first, MFLs, and water shortage declarations.

Recommendations

6.1. Coordinate with the SJRWMD, the SWFWMD, and the FDEP

Total Costs of Projects/Recommendations

During FY 2002, $35,000 has been allocated to this project. The efforts to coordinate with other water management districts is expected to require 1 FTE of SFWMD staff each fiscal year from FY 2002 through FY 2006, for a total of 5 FTEs.

Quantity of Water Potentially Available

No water will be made available through this recommendation.

Funding Sources

The SFWMD will fund this recommendation.

Implementing Agencies

The SFWMD will implement this recommendation.

Summary of Changes/Implementation from the Previous Work Program

Intergovernmental Coordination. The SFWMD has dedicated 1 FTE to interdistrict and interagency efforts during FY 2001. This level of effort is expected to continue through FY 2006.

Strategy 7. Ensure Consistency between Planning and Water Use Permitting

Description/Discussion

Salient portions of the *KB Water Supply Plan* will be incorporated into the CUP Program through rulemaking.

Recommendations

7.1. Continue rulemaking efforts

Total Costs of Projects/Recommendations

This recommendation has been incorporated into Recommendation 40 of the *LEC Regional Water Supply Plan* section (**Table 7**).

Quantity of Water Potentially Available

No water will be made available through this recommendation.

Funding Sources

The SFWMD will fund this recommendation.

Implementing Agencies

The SFWMD will implement this recommendation.

Summary of Changes/Implementation from the Previous Work Program

Rulemaking. This recommendation has been incorporated into Recommendation 40 of the *LEC Regional Water Supply Plan* section (**Table 7**).

Summary of KB Water Supply Plan Costs and Schedules

Table 4. Summary of Estimated Schedule and SFWMD Costs for Water Resource Development Recommendations in the *KB Water Supply Plan*

Strategies and Recommendations		Plan Implementation Costs ($1,000s and FTEs)											
		FY 2002		FY 2003		FY 2004		FY 2005		FY 2006		Total FY 2002-FY 2006	
		$	FTE	$	FTE	$	FTE	$	FTE	$	FTE	$	FTE
Orange-Osceola County Area													
Strategy 1: Minimize Floridan Aquifer Drawdown through Recharge													
1.1	Develop a regional reclaimed water optimization plan	565	1.45	300	0.30	210	0.45	50	0.35	Complete		1,125	2.55
1.2	Develop stormwater reuse plans	0	0.75	175	0.20	75	0.20	25	0.10	Complete		275	1.25
	Subtotal	**565**	**2.20**	**475**	**0.50**	**285**	**0.65**	**75**	**0.45**	**0**	**0.00**	**1,400**	**3.80**
Strategy 2: Minimize Floridan Aquifer Drawdown through Reduction of Demands													
2.1	Develop a comprehensive water conservation program	See the Districtwide Water Resource Development Efforts section (**Table 1**)											
Strategy 3: Optimize Use of the Floridan Aquifer and Develop Alternative Sources													
3.1	Research and develop alternative water supplies	500	2.00	100	1.00	100	1.00	100	1.00	Complete		800	5.00
3.2	Determine the optimized use of the Floridan aquifer	520	2.00	800	2.25	450	1.25	200	1.25	Complete		1,970	6.75
	Subtotal	**1,020**	**4.00**	**900**	**3.25**	**550**	**2.25**	**300**	**2.25**	**0**	**0.00**	**2,770**	**11.75**
Lake Istokpoga-Indian Prairie Basin													
Strategy 4: Develop Alternative Water Resources													
4.1	Develop an operational plan for backpumping from Lake Okeechobee	Determined not feasible at this time										0	0.00
4.2	Investigate the availability of water from the Kissimmee River											0	0.00
	Subtotal	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**
Strategy 5: Develop a Water Management Plan for the Lake Istokpoga-Indian Prairie Basin													
5.1	Develop a water management plan for the Lake Istokpoga-Indian Prairie basin	0	1.00	0	1.00	Incorporated into the Lake Istokpoga Regulation Schedule Project that is part of the CERP (**Table 3**)						0	2.00
5.2	Evaluate regional storage	0	1.00	0	1.00							0	2.00
	Subtotal	**0**	**2.00**	**0**	**2.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**4.00**
Related Strategies													
Strategy 6: Coordination among Water Management Districts													
6.1	Coordinate with the SJRWMD, the SWFWMD, and the FDEP	35	1.00	0	1.00	0	1.00	0	1.00	0	1.00	35	5.00
	Subtotal	**35**	**1.00**	**0**	**1.00**	**0**	**1.00**	**0**	**1.00**	**0**	**1.00**	**35**	**5.00**
Strategy 7: Ensure Consistency between Planning and Water Use Permitting													
7.1	Continue rulemaking efforts	Incorporated into Recommendation 40 of the *LEC Regional Water Supply Plan* (Table 7).											
	Subtotal	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**
	TOTAL	**1,620**	**9.20**	**1,375**	**6.75**	**835**	**3.90**	**375**	**3.70**	**0**	**1.00**	**4,205**	**24.55**

Summary of the Quantity of Water to Be Made Available by Implementation of the KB Water Supply Plan

Table 5. Water Made Available Through Implementation of the *KB Water Supply Plan* by FY 2002 and by FY 2006

Recommendation		Estimated Water Made Available (MGD)	
		By FY02	By FY06
1.1	Develop a Regional Reclaimed Water Optimization Plan	1.5	1.5
1.2	Develop Stormwater Reuse Master Plans	0.0	0.0
2.1	Develop a Comprehensive Water Conservation Program	0.9	4.0
3.1	Research and Develop Alternative Water Supplies	0.0	0.0
3.2	Determine Optimized Use of the Floridan Aquifer	0.0	0.0
4.1	Develop an Operational Plan for Backpumping from Lake Okeechobee	0.0	41.0
4.2	Investigate the Availability of Water from the Kissimmee River	0.0	0.0
5.1	Develop a Water Management Plan for the Lake Istokpoga-Indian Prairie Basin	0.0	15.0
5.2	Evaluate Regional Storage	0.0	0.0
6.0	Interdistrict and FDEP Coordination	0.0	0.0
7.0	Continue Rulemaking Efforts	0.0	0.0
	TOTAL	**2.4**	**61.5**

1998 Upper East Coast Water Supply Plan

Plan Organization

Several issues were identified in the *UEC Water Supply Plan* (SFWMD, 1998a) that needed to be addressed, including surface water availability, Floridan aquifer water quality, freshwater discharges to the St. Lucie Estuary, saltwater intrusion vulnerability, and potential cumulative impacts to wetlands. Seven water source options were identified to address these issues:

1. Surface water storage
2. Aquifer storage and recovery
3. Floridan aquifer
4. Conservation
5. Wastewater reuse
6. Utility interconnects
7. Related implementation strategies

Water resource development recommendations were made for each of these options. Analyses in the plan indicated that expansion of the Surficial Aquifer System, primarily along the coast, is limited and that development of the options listed above were necessary to meet projected future demands.

Information Provided

The summary of each of the seven water resource development options includes a description, a list of recommendations, funding sources, implementing agencies, costs to nonfederal entities (primarily the SFWMD), and estimates of total SFWMD staff time required in FTEs to implement the option. The schedule and costs to implement the recommendations in the *UEC Water Supply Plan* over the next five fiscal years are summarized in **Table 6** at the end of this section. In addition, estimates are provided (to the extent this can be determined) of the amount of water that will be made available for each recommendation in **Table 7**, also at the end of this section.

The water resource development projects are listed to correspond with the options and recommendations in the *UEC Water Supply Plan*. For each option, a description is provided of changes in the plan scope or implementation that have occurred during the past year since the last *Five-Year Water Resource Development Work Program* report (SFWMD, 2000a) was published.

Water Resource Development Options and Recommendations

The time frame of the *UEC Water Supply Plan* (FY 1998 - FY 2002) is approaching completion with respect to the *Five-Year Water Resource Development Work Program* (FY 2002 - FY 2006). Many of the recommendations in the *UEC Water Supply Plan* will be completed by FY 2002. The exceptions include ongoing programs such as the Floridan Aquifer Monitoring Program and programs that extend beyond 2002, such as the Ten Mile Creek Critical Restoration Project and the Indian River Lagoon Project. The recommendations reported in this work program will have the text and summary table largely completed in scope.

The *UEC Water Supply Plan* was originally scheduled to be updated in 2003. However, after meeting with the FDEP and the other water management districts, the deadline was extended to June 2005 so the document will be more consistent with the updates of all of the other regional water supply plans in the State of Florida.

1. Surface Water Storage

Definition/Discussion

This option involves the capture and storage of excess surface water during rainy periods and subsequent release during drier periods for environmental and human uses. Regionally, surface water storage could be used to attenuate freshwater flows to the St. Lucie Estuary and the Indian River Lagoon during rainy periods and meet minimum flows during drier periods. In addition, these facilities could increase surface water availability for current and projected agricultural uses, and decrease the demand on the Floridan aquifer. This option also includes supporting the improvement of the C-23 Canal.

Recommendations

1.1. Complete the Indian River Lagoon Feasibility Study
1.2. Identify, design, and construct other regional attenuation facilities
1.3. Support the design and construction of the Ten Mile Creek Project
1.4. Develop and adopt MFLs for the St. Lucie Estuary
1.5. Increase storage and conveyance in C canals (i.e., C-23 Canal Dredging)

Total Costs of Projects/Recommendations

The Indian River Lagoon Feasibility Study has been incorporated into the larger Indian River Lagoon Project that is part of the CERP (see **Table 3**). The Ten Mile Creek Project, a Critical Project, has also been incorporated into the CERP (see **Table 2**). The remaining recommendations will cost the SFWMD $3 million and 4.18 FTEs.

Quantity of Water Potentially Available

See **Table 7** for the quantity of water potentially available by FY 2002 and by FY 2006.

Funding Sources

- Indian River Lagoon Feasibility Study - SFWMD (50 percent) and USACE (50 percent)
- Ten Mile Creek - SFWMD, St. Lucie County, and other public and private interests (50 percent), and USACE (50 percent)
- St. Lucie Estuary MFLs - SFWMD
- C canal capacity – SFWMD

Implementing Agencies

The SFWMD is the sole implementing agency for most of the surface water storage recommended projects. The exceptions are the Indian River Lagoon Feasibility Study and the Ten Mile Creek Critical Restoration Project, which are cooperative efforts with the USACE.

Summary of Changes/Implementation from the Previous Work Program

Indian River Lagoon Feasibility Study. The Indian River Lagoon Feasibility Study is a cost-shared project between the SFWMD and USACE. The draft report was released in October 2001 and was followed by public workshops. It will be presented to Congress for authorization in the summer of 2002. After evaluating several alternatives, wetland restoration, stormwater detention reservoirs, and stormwater treatment areas make up the bulk of the preliminary selected plan. The recommended plan will be considered for authorization in the Water Resource Development Act of 2002.

Ten Mile Creek Critical Restoration Project. The Ten Mile Creek Critical Restoration Project is a cost-shared project between the SFWMD, the USACE, and local sponsors. It is closely linked to the Indian River Lagoon Feasibility Study for water preserve areas. Detailed design is under way. Alternative design analysis along with 30 percent design plans (general location with element descriptions) was completed in June 2001. Currently, the 60 percent design analysis, including geotechnical work, is being performed. Plans and a report for the 60 percent design were completed at the end of October 2001. Completed design plans (100% - blueprints ready for construction) were completed in April 2002. Award of a construction contract will follow in August 2002.

Minimum Flows and Levels for the St. Lucie River and Estuary. A final draft of the *Technical Documentation to Support Development of Minimum Flows and Levels for the St. Lucie River and Estuary* was published in March 2002. This report documents the methods and technical criteria used by SFWMD staff to develop MFLs for the river and estuary. This draft will be revised, based on staff's comments, and presented to the Governing Board by November 2002 as the technical basis for rulemaking.

Storage and Conveyance in C Canals. This recommendation will be realized under the SFWMD's Canal Conveyance Capacity Program. The Canal Conveyance Capacity Program is a 12-year plan for performing dredging in six canals in the SFWMD, one of which is located in the UEC planning area (C-23 Canal). These canals were prioritized based on technical factors such as the severity of deposition within the canal, and the likely monetary consequences of flooding. The C-23 Canal is the second canal on the Canal Conveyance Capacity Program priority list and is being dredged in three phases. Phase I (8.5 miles) of the dredging project was completed by mid-November 2001. Phase II (7.4 miles) has begun and is expected to be completed in July 2002. This project was budgeted at $650,000 and 0.23 FTEs for FY 2002. Each year, the SFWMD will proceed with a budget request to continue the dredging of the C-23 Canal.

2. Aquifer Storage and Recovery

Definition/Discussion

Aquifer storage and recovery (ASR) is the underground storage of injected water into an acceptable aquifer during times when water is available, and the subsequent recovery of this water when it is needed. In southeastern Florida the Floridan aquifer is typically used.

Recommendations

2.1. Evaluate colocating ASR and surface water storage
2.2. Evaluate canal water quality for surface water ASR
2.3. Evaluate reactivating the Demonstration Project for Lake Okeechobee ASR
2.4. Explore rule changes to facilitate untreated water ASR
2.5. Develop rules to address conflicts with ASR and the Floridan aquifer
2.6. Evaluate injecting excess surface water into the Floridan aquifer for recharge
2.7. Evaluate injecting surface water to increase freshwater head

Total Costs of Projects/Recommendations

All of these recommendations have been incorporated into either CERP or other planning area recommendations.

Quantity of Water Potentially Available

See **Table 7** for the quantity of water potentially available by FY 2002 and by FY 2006.

Funding Source

Projects are funded by the SFWMD, except for those that are within the scope of the Indian River Lagoon Feasibility Study, which is cofunded between the SFWMD and the USACE.

Implementing Agency

Implementing agencies include the SFWMD, the USACE, the FDEP, and the United States Environmental Protection Agency (USEPA).

Summary of Changes/Implementation from the Previous Work Program

Recommendations 2.1 to 2.4. Four of the seven recommendations made for ASR in the *UEC Water Supply Plan* have been incorporated into the ASR pilot projects being implemented as part of the CERP. The SFWMD is in the planning and development phase of Recommendations 2.1 and 2.2. Reactivating the Demonstration Project for Lake Okeechobee ASR (Recommendation 2.3) is currently not feasible, but has been incorporated into the CERP ASR pilot projects for further evaluation. The status of Recommendation 2.4 is discussed in the next paragraph.

Explore Rule Changes to Facilitate Untreated Water ASR. The SFWMD provided technical and legislative support to the FDEP for the sponsorship of Senate Bill 854/House Bill 705 regarding ASR in the Florida Legislative session. The bill was designed to allow for an exemption to the total coliform drinking water standard for ASR recharge water, provided die-off of these organisms could be demonstrated by the applicant. The bill did not make it into law. The SFWMD intends to continue its support of the ASR concept by funding a study on the fate of microorganisms in aquifers as part of the CERP.

Recommendations 2.5 to 2.7. The remaining three recommendations are being implemented through the recommendations of other water supply plans. Revisions to the SFWMD's Water Use Basis of Review related to Floridan aquifer use and ASR (Recommendation 2.5) will be incorporated into the upcoming rulemaking effort discussed under Recommendation 40 of the *LEC Regional Water Supply Plan*. The evaluation of injecting excess surface water into the Floridan aquifer for recharge has been incorporated into Recommendations 1.2 and 3.1 of the *KB Water Supply Plan*. The evaluation of injecting surface water to increase the freshwater head (Recommendation 2.7) has been incorporated into Recommendation 1 of the *LEC Regional Water Supply Plan*.

3. Floridan Aquifer

Definition/Discussion

The Floridan aquifer is used extensively by citrus growers in the UEC planning area, primarily as a supplemental irrigation source when surface water availability is limited and as a primary source in areas where no surface water is available. During times of drought or other times of scarce surface water, water from the Floridan aquifer is blended with surface water. This blending reduces potential problems associated with water quality due to the brackish nature of Floridan aquifer water. Water quality is critical in maintaining the sustainability of this source. The Floridan aquifer water is nonpotable throughout the planning area and requires desalination or blending prior to potable use. The Floridan aquifer is currently being used by Fort Pierce Utilities Authority for blending with Surficial Aquifer System water. Martin County Utilities and a number of smaller private coastal facilities use the Floridan aquifer as a primary source. Most of the utilities in the planning area intend to use it in the future. The Floridan aquifer has potential for supplying the portion of the projected demands that cannot be met by the Surficial Aquifer System.

Recommendations

3.1. Remove the Floridan aquifer from the MFL priority list
3.2. Develop and implement a Floridan aquifer monitoring network
3.3. Develop incentives for a Floridan aquifer well abandonment program
3.4. Evaluate desalination concentrate disposal options
3.5. Evaluate recharge areas in Central Florida

Total Costs of Projects/Recommendations

The total remaining costs of projects/recommendations associated with the Floridan aquifer in the UEC are approximately $732,000 with 3.55 FTEs.

Quantity of Water Potentially Available

See **Table 7** for the quantity of water potentially available by FY 2002 and by FY 2006.

Funding Sources

- Floridan aquifer monitoring network - SFWMD, Natural Resources Conservation Service (NRCS), and USGS
- Floridan well abandonment - SFWMD and NRCS

Implementing Agencies

Implementing agencies include the SFWMD, the NRCS, and the USGS.

Summary of Changes/Implementation from the Previous Work Program

Remove the Floridan Aquifer from the MFL Priority List. As reported last year, the Floridan aquifer has been removed from the SFWMD's list for establishment of MFL criteria based on the recommendation and analysis associated with the *UEC Water Supply Plan*. The need to include the Floridan aquifer on future MFL priority lists will be reassessed during future updates to this plan.

Develop a Comprehensive Floridan Aquifer Monitoring Network. A monitoring network to collect data and evaluate the relationship between water quality, water levels, and water use in the Floridan aquifer was established during FY 2000. The network consists of 31 locations distributed across the UEC planning area that are monitored for water levels and water quality. Ten of the locations, each with one well, are monitored by the SFWMD. The remaining 21 locations, consisting of a total of 58 wells, are monitored under contract by the St. Lucie Soil and Water Conservation District. This effort will continue indefinitely until sufficient data has been collected and evaluated. The SFWMD will also continue its study with the USGS to evaluate potential water quality changes and the sustainability of the Floridan aquifer. This study began in April 1999 and will continue until September 2002.

Develop Floridan Well Abandonment Program. The SFWMD entered into an agreement with the NRCS to share the cost of well plugging and irrigation conversion projects in Martin and St. Lucie Counties. The agreement period was from April 1998 through February 2000. In St. Lucie County, 37 wells were closed. Three were closed in Martin County. The SFWMD contribution to the program was $75,000, but not all of the funds have been used. The SFWMD is in the process of entering into a new agreement with the NRCS to close at least 10 additional wells in St. Lucie County using the remaining funds (approximately $24,000).

Explore Desalination Concentrate Disposal Options. As reported last year, the SFWMD participated in a workshop with the SJRWMD, the FDEP, and the USEPA concerning options for disposal of concentrate from desalination treatment facilities. Potential methods of disposal include deep well injection, surface water discharge, and blending with reclaimed water. For deep well injection, reclassifying concentrate to something other than industrial waste was discussed to reduce construction costs. For surface water discharges, the FDEP had indicated a desire to assist applicants early on to characterize water quality in receiving bodies and of the concentrate (based on source quality and treatment method), and applying a screening level process to identify potential concerns up front, including toxicity. Reclassifying concentrate to something other than industrial waste was discussed during the 2000 legislative session, but no bill has passed related to this issue.

Evaluate Floridan Aquifer Recharge Areas. This recommendation to evaluate Floridan aquifer recharge areas is being addressed in the implementation of the *Kissimmee Basin Water Supply Plan* (Recommendations 1.1 and 1.2). A major task of this recommendation will be to identify recharge areas in Orange, Osceola, and Polk Counties in support of recharge optimization modeling. This task began in FY 2001 and is expected to be completed by FY 2005.

4. Conservation

Definition/Discussion

This option requires implementation of water conservation measures that achieve long-term permanent reductions in water use rates. In 1992, the SFWMD amended its water use permitting rules to incorporate specific mandatory water conservation requirements for each use type. Use types include public water suppliers, commercial/industrial users, landscape and golf course users, and agricultural users.

Recommendations

4.1. Promote water conservation
4.2. Provide cost-share funding for MILs

Total Costs of Projects/Recommendations

The total costs of the conservation program and the MILs are discussed in the Districtwide Water Resource Development Efforts section.

Quantity of Water Potentially Available

See **Table 7** for the quantity of water potentially available by FY 2002 and by FY 2006.

Funding Source

The SFWMD and local sponsors will fund the conservation recommendations.

Implementing Agency

The SFWMD and local sponsors will implement the conservation recommendations.

Summary of Changes/Implementation from the Previous Work Program

Promote Water Conservation. The SFWMD established the Comprehensive Water Conservation Program earlier this year. The program is discussed in more detail in the Districtwide Water Resource Development Efforts section.

Mobile Irrigation Laboratories. The St. Lucie and the Martin Soil and Water Conservation Districts are currently operating urban MILs in each of the respective counties. These labs provide homeowners, condominium associations, golf courses, and public buildings and parks with on-site analyses, system evaluations, and water quality evaluations. The Martin and St. Lucie County labs were established in 1998 and 1999, respectively. Also, another agricultural lab funded by the United States Department of Agriculture (USDA) and NRCS serves both counties. The labs educate property owners/operators on irrigation efficiency and system design needs. Each urban MIL completes 140 evaluations per year, with a potential water savings of 50 to

60 million gallons of water per year and an associated reduction in lawn chemicals and fertilizers leaving sites as runoff. The priority area for implementing urban MILs is the St. Lucie Estuary watershed, and they have been funded in part by the St. Lucie River Issue Team funds that are administered through the FDEP. Each MIL previously operated on a budget of $110,000 with 50 percent coming from the St. Lucie River Issue Team fund and the other 50 percent from the local soil and water conservation districts and the USDA and the NRCS. The St. Lucie River Issues Team continued to fund the urban MILs through December 2001. The SFWMD has included the MILs in its Comprehensive Water Conservation Program and began funding these labs in January 2002.

5. Wastewater Reuse

Definition/Discussion

Reuse is the deliberate application of reclaimed water (treated wastewater) for a beneficial purpose. Potential uses of reclaimed water include landscape and agricultural irrigation, ground water recharge, industrial uses, and environmental enhancement. In 1993, the twelve UEC regional wastewater facilities treated an average of 13.1 MGD of wastewater, of which 3.1 MGD was reused. In 1996, these facilities treated 13.3 MGD, of which 3.5 MGD was reused. Reuse included irrigation of golf courses and ground water recharge via rapid exfiltration basins and primarily occurred in urban Martin County and southern St. Lucie County.

Recommendations

5.1. Develop incentives for reuse
5.2. Evaluate reclaimed water system interconnects
5.3. Adopt rules related to wastewater reuse
5.4. Assist with reclaimed water projects involving ground water recharge
5.5. Work with the FDEP on reclaimed water quality standards for ground water recharge

Total Costs of Projects/Recommendations

The total remaining costs of projects/recommendations associated with wastewater reuse in the *UEC Water Supply Plan* section are 0.2 FTEs.

Quantity of Water Potentially Available

See **Table 7** for the quantity of water potentially available by FY 2002 and by FY 2006.

Funding Source

The SFWMD is funding all of the wastewater reuse recommendations. Additionally, the development of additional reuse incentives is being funded through Alternative Water Supply Grant funds.

Implementing Agency

The implementing agency is the SFWMD for all the wastewater reuse recommendations.

Summary of Changes/Implementation from the Previous Work Program

Reuse Coordination. As reported last year, the SFWMD continues its involvement in wastewater reuse at the state level as well as the local level. At the state level, the SFWMD has continued its participation on the Statewide Reuse Coordinating Committee, which consists of representatives from the five water management districts, the FDEP, the Department of Health Public Service Commission, the Florida Department of Agriculture, and several other agencies. This committee coordinates reuse related activities statewide, and develops consistent policies and approaches for encouraging reuse. The SFWMD has also continued to meet with the local FDEP district offices to coordinate reuse activities at the local level, as well as on specific projects.

Reuse Regulations. The SFWMD continues to work with the FDEP to develop project-level understanding of reclaimed water associated with Chapter 62-610, Florida Administrative Code, Reuse of Reclaimed Water and Land Application. Beginning in FY 2003, this activity will be incorporated into Recommendation 44 of the *LEC Regional Water Supply Plan* (SFWMD, 2000d).

Combining of Reuse Efforts. Most of the reuse recommendations for the UEC planning area have been or will be incorporated into the recommendations for the same efforts within the LEC planning area. The evaluation of reclaimed water system interconnects recommendation has already been incorporated into Recommendation 43 and reuse rule development has already been incorporated into Recommendation 40 of the *LEC Regional Water Supply Plan*. Beginning in FY 2003, assisting with reclaimed water projects involving ground water recharge will be incorporated into Recommendation 44 of the *LEC Regional Water Supply Plan*.

6. Utility Interconnects

Definition/Discussion

This option involves the bulk purchase of treated water from neighboring utilities in lieu of expanding an existing withdrawal and/or treatment facility. Also, interconnection of treated and/or raw water distribution systems between utilities can provide a measure of backup water service in the event of disruption of a water source, treatment facility, or distribution system. Interconnections could be with utilities outside the UEC planning area or the SFWMD.

Recommendations

6.1. Encourage potable water interconnects

Total Costs of Projects/Recommendations

Any costs for projects/recommendations associated with utility interconnects are budgeted under Recommendation 40 of the *LEC Regional Water Supply Plan* section.

Quantity of Water Potentially Available

See **Table 7** for the quantity of water potentially available by FY 2002 and by FY 2006.

Funding Source

The SFWMD and water treatment utilities will fund the utility interconnects recommendation.

Implementing Agency

The SFWMD and water treatment utilities will implement the utility interconnects recommendation.

Summary of Changes/Implementation from the Previous Work Program

Encourage Potable Water Interconnects. This activity has been incorporated into Recommendation 40 of the *LEC Regional Water Supply Plan*.

7. Related Implementation Strategies

Definition/Discussion

The UEC Water Supply Plan Advisory Committee recommended five related strategies to implement the *UEC Water Supply Plan*. Most of these strategies involve incorporation of the modeling assumptions used in development of this plan into the CUP Program through a subsequent rulemaking effort.

Recommendations

7.1. Incorporate the assumptions and criteria of the *UEC Water Supply Plan* into the CUP Program
7.2. Continue coordination of *UEC Water Supply Plan* implementation
7.3. Continue the Wetland Drawdown Study
7.4. Wetland mitigation should remain in the region
7.5. Fund implementation of the *UEC Water Supply Plan*

Total Costs of Projects/Recommendations

The remaining costs associated with implementing the related implementation strategies of the *UEC Water Supply Plan* are incorporated into either the Districtwide efforts or the *LEC Regional Water Supply Plan* recommendations.

Quantity of Water Potentially Available

These recommendations will not directly result in any water becoming available.

Funding Source

The SFWMD will fund the implementation recommendations.

Implementing Agency

The SFWMD will implement these recommendations.

Summary of Changes/Implementation from the Previous Work Program

Incorporate the Assumptions and Criteria of the *UEC Water Supply Plan* into the SFWMD's CUP Program. The SFWMD has initiated rulemaking in 26 subject matters in the CUP Program and other components of the SFWMD's overall water responsibilities. White papers and preliminary rule drafts have been developed for several of the subjects. The SFWMD held rulemaking workshops in the UEC planning area during the last week of October 2001. The rules were scheduled for Governing Board adoption in March 2002. The proposed irrigation basin rule extends the expiration date for UEC permits to June 2003.

Continue Coordination of *UEC Water Supply Plan* Implementation. As reported last year, coordination of the *UEC Water Supply Plan* (SFWMD, 1998a) implementation with local governments and utilities continues through many activities including comprehensive plan reviews, CUP activities, and the alternative water supply funding program. A memorandum of understanding has been signed with the SJRWMD formalizing our coordination efforts in the areas of water resource investigations, water supply planning and development, water use regulation, and water shortage management. The SJRWMD and the SFWMD share information on a regular basis. Coordination of the *UEC Water Supply Plan* implementation with the Indian River Lagoon Feasibility Study and other SFWMD regional planning and development efforts continues through internal forums and utilization of the same SFWMD staff.

Continue the Wetland Drawdown Study. Continuation of the Wetland Drawdown Study is a districtwide project that will be used to develop new criteria for the water drawdown rules. A complete discussion of this project is found in the Districtwide Water Resource Development Efforts section.

Wetland Mitigation in the UEC Planning Area Should Remain in the Region. St. Lucie County continues to move forward with plans to establish a mitigation area within the county. The

area under consideration is a 102-acre citrus grove on Sunrise Boulevard, north of Platt's Creek adjacent to the North Fork of the St. Lucie River. A contract was executed in December 1999 to purchase the grove so that it can be transformed back to its original state, which was forested floodplain and marsh. A $1 million grant from the St. Lucie River Issues Team (with $70,000 in matching funds) financed the land purchase in 1999. In 2000, St. Lucie County was awarded a $760,000 grant from the St. Lucie River Issues Team (with $760,000 in matching funds). Design of the mitigation was completed in 2001. Permit applications have been submitted to the SFWMD. The project is expected to be completed in late 2003.

Summary of UEC Water Supply Plan Costs and Schedules

Table 6. Summary of Estimated Schedule and SFWMD Costs for Water Resource Development Recommendations in the *UEC Water Supply Plan*

Water Source Options and Recommendations		Plan Implementation Costs ($1,000s and FTEs)											
		FY 2002		FY 2003		FY 2004		FY 2005		FY 2006		Total Cost FY 2002-FY 2006	
		$	FTE	$	FTE	$	FTE	$	FTE	$	FTE	$	FTE
Water Source Option 1: Surface Water Storage													
1.1	Complete the Indian River Lagoon Feasibility Study	Incorporated into the Indian River Lagoon Project that is part of the CERP (**Table 3**)											
1.2	Identify, design, and construct other regional attenuation facilities	Ongoing with no funds or FTEs committed at this time											
1.3	Support the design and construction of the Ten Mile Creek Project	See **Table 2** in the Districtwide Water Resource Development Efforts section (Critical Projects)											
1.4	Develop and adopt MFLs for the St. Lucie Estuary	1	0.20	Complete								1	0.20
1.5	Increase storage and conveyance in C canals (C-23 Canal Dredging)	650	0.23	800	1.25	800	1.25	800	1.25	TBD	TBD	3,050	3.98
	Subtotal	**651**	**0.43**	**800**	**1.25**	**800**	**1.25**	**800**	**1.25**	**0**	**0.00**	**3,051**	**4.18**
Water Source Option 2: Aquifer Storage and Recovery													
2.1	Evaluate colocating ASR and surface water storage	Incorporated into the ASR pilot projects listed in the CERP table (**Table 3**)											
2.2	Evaluate canal water quality for surface water ASR	Incorporated into the ASR pilot projects listed in the CERP table (**Table 3**)											
2.3	Evaluate reactivating the Demonstration Project for Lake Okeechobee ASR	Currently not feasible; incorporated into the ASR pilot projects listed in the CERP table (**Table 3**) for further evaluation											
2.4	Explore rule changes to facilitate untreated water ASR	Incorporated into the ASR pilot projects listed in the CERP table (**Table 3**)											
2.5	Develop rules to address conflicts with ASR and the Floridan aquifer	Incorporated into Recommendation 40 of the *LEC Regional Water Supply Plan* (**Table 7**)											
2.6	Evaluate injecting excess surface water into the Floridan aquifer for recharge	Incorporated into Recommendations 1.2 and 3.1 of the *KB Water Supply Plan* (**Table 4**)											
2.7	Evaluate injecting surface water to increase freshwater head	Incorporated into Recommendation 1 of the *LEC Regional Water Supply Plan* (**Table 7)**											
Water Source Option 3: Floridan Aquifer													
3.1	Remove the Floridan aquifer from the MFL priority list	Complete											
3.2	Develop and implement a Floridan aquifer monitoring network	228	0.70	120	0.70	120	0.70	120	0.70	120	0.70	708	3.50

Water Source Options and Recommendations		Plan Implementation Costs ($1,000s and FTEs)											
		FY 2002		FY 2003		FY 2004		FY 2005		FY 2006		Total Cost FY 2002-FY 2006	
		$	FTE	$	FTE	$	FTE	$	FTE	$	FTE	$	FTE
3.3	Develop incentives for a Floridan aquifer well abandonment program	24	0.05	Ongoing with no funds or FTEs committed at this time								24	0.05
3.4	Evaluate desalination concentrate disposal options	Pending FDEP rule changes											
3.5	Evaluate recharge areas in Central Florida	Incorporated into Recommendations 1.1 and 1.2 of the *KB Water Supply Plan* (**Table 4**)											
	Subtotal	**252**	**0.75**	**120**	**0.70**	**120**	**0.70**	**120**	**0.70**	**120**	**0.70**	**732**	**3.55**
Water Source Option 4: Conservation													
4.1	Promote water conservation	See the Districtwide Water Resource Development Efforts section (**Table 1**)											
4.2	Provide cost-share funding for MILs												
Water Source Option 5: Wastewater Reuse													
5.1	Develop incentives for reuse	Being funded through Alternative Water Supply Grant Funds											
5.2	Evaluate reclaimed water system interconnects	Incorporated into Recommendation 43 of the *LEC Regional Water Supply Plan* (**Table 7**)											
5.3	Adopt rules related to wastewater reuse	Incorporated into Recommendation 40 of the *LEC Regional Water Supply Plan* (**Table 7**)											
5.4	Assist with reclaimed water projects involving ground water recharge	0	0.10	Incorporated into Recommendation 44 of the *LEC Regional Water Supply Plan* (Table 7)								0	0.10
5.5	Work with the FDEP on reclaimed water quality standards for ground water recharge	0	0.10	Incorporated into Recommendation 44 of the *LEC Regional Water Supply Plan* (**Table 7**)								0	0.10
	Subtotal	**0**	**0.20**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.20**
Water Source Option 6: Utility Interconnects													
6.1	Encourage potable water interconnects	See Recommendation 40 in the *LEC Regional Water Supply Plan* section (**Table 7**)											
Water Source Option 7: Related Implementation Strategies													
7.1	Incorporate the assumptions and criteria of the *UEC Water Supply Plan* into the CUP Program	Incorporated into Recommendation 40 of the *LEC Regional Water Supply Plan* (**Table 7**)											
7.2	Continue coordination of *UEC Water Supply Plan* implementation	Ongoing										0	0.00
7.3	Continue the Wetland Drawdown Study	See the Districtwide Water Resource Development Efforts section (**Table 1**)											
7.4	Wetland mitigation should remain in the region	Complete											
7.5	Fund implementation of the *UEC Water Supply Plan*	Ongoing										0	0.00
	Subtotal	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**
	TOTAL	**903**	**1.38**	**920**	**1.95**	**920**	**1.95**	**920**	**1.95**	**120**	**0.70**	**3,783**	**7.93**

Summary of the Quantity of Water to Be Made Available by Implementation of the UEC Water Supply Plan

Table 7. Water Made Available Through Implementation of the *UEC Water Supply Plan* by FY 2002 and by FY 2006

	Recommendation	Estimated Water Made Available (MGD)	
		By FY02	By FY06
1	**Surface Water Storage**		
1.1	Complete the Indian River Lagoon Restoration Feasibility Study (CERP)	0.0	0.0
1.2	Identify, design, and construct other regional attenuation facilities (CERP)	0.0	0.0
1.3	Support the design and construction of the Ten Mile Creek Critical Restoration Project	0.0	0.0
1.4	Develop and adopt MFL criteria for the St. Lucie Estuary	0.0	0.0
1.5	Evaluate increasing storage and conveyance in C-Canals (C-23)	0.0	0.0
2	**Aquifer Storage and Recovery**		
2.1	Evaluate the potential of colocating ASR and surface water storage (CERP)	0.0	0.0
2.2	Evaluate surface water quality for ASR (CERP)	0.0	0.0
2.3	Evaluate the potential of reactivating the Lake Okeechobee ASR Demonstration Project (CERP)	0.0	0.0
2.4	Explore rule changes in the UIC Program	0.0	0.0
2.5	Develop rules to address potential conflicts between ASR and Floridan aquifer use	0.0	0.0
2.6	Evaluate the feasibility of injecting excess surface water into the Floridan aquifer (CERP)	0.0	0.0
2.7	Evaluate injection of excess surface water to increase coastal head (CERP)	0.0	0.0
3	**Floridan Aquifer**		
3.1	Remove Floridan aquifer from the MFL Priority List	0.0	0.0
3.2	Develop a regional Floridan aquifer monitoring network	0.0	0.0
3.3	Develop options for a volunteer well abandonment program	0.0	0.0
3.4	Explore desalination concentrate disposal options	0.0	0.0
3.5	Evaluate Floridan aquifer recharge areas	0.0	0.0
4	**Conservation**		
4.1	Promote water conservation (agricultural irrigation system conversion and urban)	7.4	13.2
4.2	Provide cost share funding for MILs	5.0	8.5
5	**Wastewater Reuse**		
5.1	Develop incentives for reuse	11.2	19.2
5.2	Encourage utilities to evaluate reclaimed water interconnects	0.0	0.0
5.3	Adopt rules implementing wastewater reuse and back-up sources	0.0	0.0
5.4	Provide assistance for reclaimed water projects involving recharge	0.0	0.0
5.5	Develop reclaimed water quality standards for ground water recharge	0.0	0.0
6	**Utility Interconnects**		
6.1	Encourage potable water interconnects between utilities	0.0	0.0
7	**Related Implementation Strategies**	0.0	0.0
7.1	Incorporate the UEC water supply planning criteria into the CUP process	0.0	0.0
7.2	Continue coordination of the *UEC Water Supply Plan* with other agencies and projects	0.0	0.0
7.3	Continue the ongoing Districtwide Wetland Drawdown Study	0.0	0.0
7.4	Maintain wetland mitigation in the UEC planning area within the region	0.0	0.0
	TOTAL	**23.6**	**40.9**

2000 Lower West Coast Water Supply Plan

Plan Organization

Water resource development options for the Lower West Coast (LWC) planning area are grouped based on water source options that were identified to address key regional issues:

1. Conservation
2. Ground Water Resources
3. Reclaimed Water
4. Regional Irrigation System
5. Seawater
6. Storage
7. Surface Water
8. Related Implementation Strategies

Information Provided

The summary of each of the eight water resource development options includes a

nonfederal entities (primarily the SFWMD), and estimates of total SFWMD staff time required in FTEs to implement the option. The schedule and costs to implement the recommendations in the *LWC Water Supply Plan* over the next five fiscal years are summarized in **Table 8** at the end of this section. In addition, estimates are provided (to the extent this can be determined) of the amount of water that will be made available for each recommendation in **Table 9**, also at the end of this section.

The water resource development projects are listed to correspond with the options and recommendations in the *Lower West Coast Water Supply Plan* (SFWMD, 2000c). For each option, a description is provided of changes in the plan scope or implementation that have occurred during the past year since the last *Five-Year Water Resource Development Work Program* report (SFWMD, 2000a) was published.

Water Resource Development Options and Recommendations

1. Conservation

Description/Discussion

This option requires implementation of water conservation measures that address demand rate reduction, including practices that achieve long-term permanent reductions in water use rates. The SFWMD has amended its water use permitting rules to incorporate specific, mandatory, water conservation requirements for each use type. Use types include public water suppliers, commercial/industrial users, landscape and golf course users, and agricultural users.

One conservation measure is the implementation of the districtwide Comprehensive Water Conservation Program. The costs of this program are being shared among the four planning areas. A more detailed description of this program is provided in the Districtwide Water Resource Development Efforts section.

Mobile irrigation labs (MILs) provide a cost-effective means to promote more efficient use of water among urban and agricultural water users. The SFWMD advocated maintaining the existing two and adding two more MILs in the LWC planning area through identification of dedicated funding sources to replace current SFWMD funding.

Recommendations

1.1. Develop a conservation program
1.2. Maintain and add MILs

Total Costs of Projects/Recommendations

The total costs of the Comprehensive Water Conservation Program and MILs are discussed in the Districtwide Water Resource Development Efforts section.

Quantity of Water Potentially Available

See **Table 9** for the quantity of water potentially available by FY 2002 and by FY 2006.

Funding Sources

The Comprehensive Water Conservation Program is being funded by the SFWMD and local sponsors. The MILs have been incorporated into the Comprehensive Water Conservation Program and will be funded by the SFWMD, the NRCS, the USDA, and the Florida Department of Agriculture and Consumer Services (FDACS) in FY 2002.

Implementing Agencies

The Comprehensive Water Conservation Program is being implemented by the SFWMD and local sponsors. The MILs will be implemented by the SFWMD, soil and water conservation districts, and the FDACS.

Summary of Changes/Implementation from the Previous Work Program

Comprehensive Water Conservation Program. The implementation of the Comprehensive Water Conservation Program is discussed in the Districtwide Water Resource Development Efforts section.

Mobile Irrigation Labs. In 2001, an urban MIL for Collier County was funded by the SFWMD's Big Cypress Basin in cooperation with the Collier Soil and Water Conservation

District. The MILs have been incorporated into the Comprehensive Water Conservation Program and are discussed in more detail in the Districtwide Water Resource Development Efforts section.

2. Ground Water Resources

Description/Discussion

Three major aquifer systems exist within the LWC planning area. These aquifers are identified as the Surficial Aquifer System (SAS), the Intermediate Aquifer System (IAS), and the Floridan Aquifer System (FAS).

The SAS consists of two aquifers in the LWC planning area: the water table and the lower Tamiami. These aquifers are easily recharged from the surface and are separated by leaky confining units over the majority of the LWC planning area. Wellfields using these aquifers are typically limited by the rate of recharge and water movement in the aquifer, environmental impacts, proximity to contamination sources, saltwater intrusion, and other existing legal users in the area.

The IAS consists of five zones of alternating producing and confining units, with the producing zones being the Sandstone and mid-Hawthorn aquifers. Increases in production from the IAS beyond existing demands may be limited in some areas due to potential impacts on existing legal users and the productivity of the aquifer. In some areas, this may require modifications to wellfield configurations and pumping regimes.

The FAS underlies all of Florida. It is the principal source of water in Central Florida, but it only yields nonpotable water throughout most of the LWC planning area. Water must be treated by desalination to produce a potable product. The most productive zones in the FAS in the LWC planning area are the lower Hawthorn, Suwannee, and Avon Park aquifers.

Recommendations

2.1.1. Maintain and expand the SAS monitoring program
2.1.2. Incorporate SAS concepts and criteria of the *LWC Water Supply Plan* into the CUP Program
2.1.3. Develop and utilize SAS models
2.2.1. Maintain and expand the IAS monitoring program
2.2.2 Incorporate IAS concepts and criteria of the *LWC Water Supply Plan* into the CUP Program
2.2.3. Develop and utilize IAS models
2.3.1. Develop a model to evaluate FAS use, ASR storage, and water quality
2.3.2. Expand the FAS ground water monitoring network
2.3.3. Develop and recognize FAS data partnerships
2.3.4. Continue government cooperation to explore alternative desalination concentration disposal options

Total Costs of Projects/Recommendations

Incorporation of SAS and IAS concepts into the CUP Program (Recommendations 2.1.2 and 2.2.2) is being implemented through Recommendation 40 of the *LEC Regional Water Supply Plan* (**Table 7**). The development of the model that will be used to evaluate FAS use, ASR storage, and water quality (Recommendation 2.3.1) has been incorporated into the ASR Regional Study that is part of the CERP (**Table 3**). The total costs of the remaining projects/recommendations associated with the ground water resources water source option are approximately $1.41 million, with 5.47 FTEs, for the period from FY 2002 through FY 2006.

Quantity of Water Potentially Available

See **Table 9** for the quantity of water potentially available by FY 2002 and by FY 2006.

Funding Source

The SFWMD and local sponsors will fund these projects.

Implementing Agency

The SFWMD and the USGS will implement these projects.

Summary of Changes/Implementation from the Previous Work Program

Maintain and Expand the SAS and IAS Monitoring Programs. The SFWMD and the USGS have worked cooperatively to improve the coverage of the real time aquifer water level monitor network. The SAS monitoring network was enhanced with the addition of 13 real time monitor wells. The IAS monitoring network was enhanced with a net gain of 6 real time monitor wells. Aquifer water level data is available to the public at near real time.

Develop and Utilize SAS and IAS Models. Finer resolution ground water models for Collier, Lee, and Hendry Counties have been completed, documented, and peer reviewed. The models will be used in permit renewals.

Develop a Model to Evaluate FAS Use, ASR Storage, and Water Quality. Data collection has been initiated for development of a FAS model.

Expansion of the FAS Ground Water Monitoring Network. The water quality and water level monitoring network is being enhanced with installation of real time data loggers that will record water levels on an hourly basis.

3. Reclaimed Water

Description/Discussion

Reclaimed water is water that has received at least secondary treatment and basic disinfection and is reused for a beneficial purpose after flowing out of a domestic wastewater treatment facility. Reuse is the deliberate application of reclaimed water, in compliance with FDEP and SFWMD rules, for a beneficial purpose. Potential uses of reclaimed water include landscape and agricultural irrigation, ground water recharge, industrial uses, and environmental enhancement. Reclaimed water has played a significant role in meeting the water supply needs of this region and this is expected to continue.

Recommendations

The recommendation listed under the Regional Irrigation System water source option incorporates reclaimed water. This recommendation is discussed below.

Quantity of Water Potentially Available

See **Table 9** for the quantity of water potentially available by FY 2002 and by FY 2006.

Summary of Changes/Implementation from the Previous Work Program

The use of reclaimed water continues to increase in the LWC planning area. From 1999 to 2000 reclaimed water usage increased by 6 MGD to over 63 MGD. Of the 22 wastewater facilities in the planning area, 21 are reclaiming water. Over 90 percent of the treated wastewater is being reused for irrigation of residential lots, golf courses, and other green spaces.

4. Regional Irrigation System

Description/Discussion

The construction and operation of a regional irrigation distribution system will enable water to be transferred from areas of surplus to areas of deficit to fulfill urban irrigation needs. This system could conserve the fresh ground water sources, while maximizing the use of reclaimed water that would have otherwise been discharged to surface water or deep well injected and lost from the inventory. Storage, primarily through ASR, will be a key component to bridge the gap between the seasonal and geographic relationships of available supplies and demands. This system would make irrigation water available for local supply entities/utilities to withdraw from for distribution to meet their individual needs. This system could have many different configurations, including one large regional system, several subregional systems, or a utility-by-utility basis.

Recommendations

4.1. Conduct and implement a regional irrigation system study

Total Costs of Projects/Recommendations

The total cost of conducting and implementing a regional irrigation system study is approximately $16.6 million with 0.25 FTEs, for the period of FY 2002 through FY 2006.

Quantity of Water Potentially Available

See **Table 9** for the quantity of water potentially available by FY 2002 and by FY 2006.

Funding Source

The SFWMD, the FDEP, the USEPA, local governments, water users, and/or utilities will fund the study.

Implementing Agency

The SFWMD will conduct the study.

Summary of Changes/Implementation from the Previous Work Program

Regional Irrigation System Study. A contract has been awarded to conduct a feasibility analysis and master plan for the construction and operation of a regional irrigation distribution system in the urban areas of Lee and Collier Counties. A public meeting was held to receive input on the statement of work. The Regional Irrigation Distribution System Project would consist of a distribution system that would make irrigation water available to local supply entities and utilities for distribution to individual users. Several local entities have committed cost-share funding for this project including the cities of Cape Coral, Naples, and Fort Myers; Lee and Collier Counties; Bonita Springs Utilities; Resource Conservation Systems; and Florida Water Services.

5. Seawater

Description/Discussion

This option involves using seawater from the Gulf of Mexico as a raw water source. The Gulf of Mexico appears to be an unlimited source of water from a quantity perspective; however, removal of the salts is required before use for potable or irrigation uses. A desalination treatment technology would have to be used, such as distillation, reverse osmosis, or electrodialysis reversal.

Recommendations

At the time the *LWC Water Supply Plan* was published, it was determined that seawater was a potential source, but was not cost-effective. Therefore, no recommendations were made within the plan for this water source option. Since then, technological improvements have made seawater desalination more affordable and the SFWMD is conducting a feasibility study under the

LEC Regional Water Supply Plan implementation (Recommendation 42 under the Other Water Resource Projects). This feasibility study may also benefit the other planning regions.

Total Costs of Projects/Recommendations

See Recommendation 42 under Other Water Resource Projects in the *LEC Regional Water Supply Plan* section.

Quantity of Water Potentially Available

See **Table 9** for the quantity of water potentially available by FY 2002 and by FY 2006.

Summary of Changes/Implementation from the Previous Work Program

Technological improvements have made seawater desalination more affordable. Colocation with power plants reduces cost by sharing the cost of intake and discharges facilities, providing a more desirable source water and providing sufficient cool water discharges to dilute the reverse osmosis concentrate.

The SFWMD hired a consultant to perform a feasibility study of colocating seawater reverse osmosis treatment systems with power plants. The purpose of the study is to provide order-of-magnitude cost estimates for representative sites within the SFWMD. Phase I of this feasibility study was completed in March 2002.

6. Storage

Description/Discussion

Three types of potential storage options were identified in the *LWC Water Supply Plan*. These types are ASR, regional retention, and reservoirs.

Aquifer storage and recovery (ASR) is the underground storage of injected water into an acceptable aquifer (typically the FAS in southwestern Florida) during times when water is available, and the subsequent recovery of this water during high demand periods. In other words, the aquifer acts as an underground reservoir for the injected water, reducing water loss to evaporation. Current regulations require injected water to meet drinking water standards when the receiving aquifer is classified as an underground source of drinking water aquifer, unless an aquifer exemption is obtained from the USEPA. Obtaining an aquifer exemption is a rigorous process and few have been approved. However, the USEPA has indicated that a flexible assessment approach will be applied for systems that meet all drinking water standards except fecal coliform.

Under the regional and local retention option, opportunities are examined to increase water storage through manipulation and modification of the drainage system, while still maintaining an appropriate level of flood protection. Much of the LWC planning area was drained to support agricultural and urban development. This has resulted in lowered ground water tables that may

impact natural systems as well as water availability in these areas. The analysis in the 1994 *LWC Water Supply Plan* (SFWMD, 1994) concluded that modifying water levels in existing drainage canals and eliminating unnecessary canals can significantly elevate ground water levels in the Big Cypress Basin. Committee members stated that the work completed by the Big Cypress Basin has successfully improved their canal system to increase ground water levels, resulting in less frequent irrigation demands.

The use of reservoirs involves the capture and storage of excess surface water during rainy periods and subsequent release during drier periods for environmental and human uses. Regionally, surface water storage could be used to attenuate freshwater flows to the Caloosahatchee Estuary and other estuarine water bodies during rainy periods and meet minimum flows during drier periods. In addition, these facilities could increase surface water availability for current and projected uses, and decrease the demand on aquifer systems. However, evaporative and seepage losses could significantly affect water availability.

Recommendations

6.1.1. Continue government cooperation to make rule changes to the Underground Injection Control (UIC) Program
6.1.2. Develop CUP Program rules to address the use of the FAS for ASR
6.2.1. Modify regional and local retention systems/operations

Total Costs of Projects/Recommendations

The development of CUP rules to address the use of the FAS for ASR has been incorporated into Recommendation 40 of the *LEC Regional Water Supply Plan* (**Table 7**). The total remaining cost to modify regional and local retention systems/operations is approximately $1.8 million, with 0.4 FTEs, for the period from FY 2002 through FY 2006.

Quantity of Water Potentially Available

See **Table 9** for the quantity of water potentially available by FY 2002 and by FY 2006.

Funding Source

The SFWMD, local governments, and local drainage districts will fund this recommendation.

Implementing Agency

The SFWMD, local governments, and local drainage districts will implement this recommendation.

Summary of Changes/Implementation from the Previous Work Program

Modify Regional and Local Retention Systems/Operations. The SFWMD has provided total funding of $200,000 to two regional retention projects: the Cape Coral/Gator Slough/Reuse System Enhancement Project and the East County Water Control District Aquifer Recharge Project. The Cape Coral/Gator Slough/Reuse System Enhancement Project will provide an additional 19 MGD of water for their reuse system. The East Water Control District Aquifer Recharge Project will raise water levels in a 9,000-acre watershed.

7. Surface Water

Description/Discussion

This option involves the use of surface water as a supply source. Surface water bodies in the LWC planning area include lakes, canals, and rivers. Lake Trafford and Lake Hicpochee are the two largest lakes within the LWC planning area, but neither is considered a good source of water supply. The Caloosahatchee River Basin and the associated flows from Lake Okeechobee form the largest source of surface water in the LWC planning area. *The Caloosahatchee Water Management Plan* (SFWMD, 2000e) addressed most of the surface water needs in the LWC planning area.

Recommendations

7.1. Develop a Caloosahatchee River ASR pilot project
7.2. Implement the C-43 Storage Project
7.3. Complete the Southwest Florida Study
7.4. Establish MFLs for the Caloosahatchee River and Estuary
7.5. Implement well abandonment programs
7.6. Analyze saltwater influence
7.7. Continue government cooperation to make rule changes to the UIC Program
7.8. Evaluate the environmental needs of the Southwest Florida Study

Total Costs of Projects/Recommendations

The Caloosahatchee River ASR Pilot Project, the C-43 Storage Project, and the Southwest Florida Study have been incorporated into the CERP (**Table 3**). The well abandonment programs have been incorporated into Recommendation 3.3 of the *UEC Water Supply Plan* (**Table 5**). No other costs are associated with the surface water option.

Quantity of Water Potentially Available

See **Table 9** for the quantity of water potentially available by FY 2002 and by FY 2006.

Funding Source

The SFWMD and the USACE will cost-share Recommendation 7.1, 7.2, and 7.3 as part of the CERP. Landowners and local government will fund well abandonment programs. The SFWMD will fund the analysis of saltwater influence.

Implementing Agency

The SFWMD and the USACE will implement Recommendation 7.1, 7.2, and 7.3 as part of the CERP. Landowners and local government will implement well abandonment programs. The SFWMD will implement the analysis of saltwater influence.

Summary of Changes/Implementation from the Previous Work Program

Caloosahatchee River ASR Pilot Project. The SFWMD is developing a project management plan for the Caloosahatchee River ASR Pilot Project.

C-43 Storage Project. The C-43 Storage Project has been divided into two initiatives: the C-43 Storage Reservoir and the C-43 ASR Project. A project management plan is being developed for the C-43 Storage Reservoir. The C-43 ASR Project schedule has been postponed for a start date of 2009.

Southwest Florida Study. A project management plan was approved by both the SFWMD and the USACE for the Southwest Florida Feasibility Study. A feasibility cost share agreement was signed and the study was initiated on August 1, 2001.

8. Related Implementation Strategies

Description/Discussion

This section includes those recommended efforts that could not be associated with a specific source option, or applies to several of the options. In general, these recommendations promote consistency by incorporating the concepts and guidelines used as criteria in the *LWC Water Supply Plan* into the SFWMD's water management programs through rulemaking or other implementation processes.

Recommendations

8.1.1. Incorporate criteria of the *LWC Water Supply Plan* into the CUP Program
8.1.2. Establish MFLs for the Caloosahatchee River and Estuary and the LWC aquifer systems
8.2. Cooperate with other government entities to accomplish changes in ASR and desalination disposal regulations
8.3. Continue the Wetland Drawdown Study and use knowledge in the rulemaking process

8.4. Make ground water models, data, and other relative information referenced in the *LWC Water Supply Plan* available to the public

Total Costs of Projects/Recommendations

The costs of incorporating criteria into the CUP Program has been incorporated into Recommendation 40 of the *LEC Regional Water Supply* Plan (**Table 7**). The cost of the Wetland Drawdown Study is discussed in the Districtwide Water Resource Development Efforts section. No other costs are associated with the related implementation strategies recommended in the *LWC Water Supply Plan*.

Quantity of Water Potentially Available

These recommendations will not directly result in any water becoming available.

Funding Source

The SFWMD will fund the related implementation strategies.

Implementing Agency

The SFWMD will implement these strategies.

Summary of Changes/Implementation from the Previous Work Program

Incorporation of Criteria into the CUP Program. The SFWMD has initiated rulemaking in 26 subject matters to incorporate salient portions of all of the water supply plans into the CUP Program and other components of the SFWMD's overall water supply management responsibilities. White papers and preliminary rule drafts have been developed for several of the subjects. However, because of the water shortage effort, resources were redirected temporarily and the rulemaking has been put on hold.

Establishment of MFLs for the Caloosahatchee River and Estuary and LWC Aquifer System. The MFLs for the Caloosahatchee River and Estuary and LWC aquifer system were adopted by the SFWMD's Governing Board in March 2001 and became effective in September 2001.

Cooperate with Other Government Entities to Accomplish Changes in ASR and Desalination Disposal Regulations. The SFWMD provided technical and legislative support to the FDEP for the sponsorship of Senate Bill 854/House Bill 705 regarding ASR in the Florida Legislative session. The bill was designed to allow for an exemption to the total coliform drinking water standard for ASR recharge water, provided die-off of these organisms could be demonstrated by the applicant. The bill did not make it into law. The SFWMD intends to continue its support of the ASR concept by funding a study on the fate of microorganisms in aquifers as part of the CERP.

Summary of LWC Water Supply Plan Costs and Schedules

Table 8. Summary of Estimated Schedule and SFWMD Costs for Water Resource Development Recommendations in the *LWC Water Supply Plan*

Water Source Options and Recommendations		Plan Implementation Costs ($1,000s and FTEs)											
		FY 2002		FY 2003		FY 2004		FY 2005		FY 2006		Total Cost FY 2002-FY 2006	
		$	FTE	$	FTE	$	FTE	$	FTE	$	FTE	$	FTE
Water Source Option 1: Conservation													
1.1	Develop a conservation program	See the Districtwide Water Resource Development Efforts section (**Table 1**)											
1.2	Maintain and add MILs												
Water Source Option 2: Ground Water Resources													
2.1.1	Maintain and expand the SAS monitoring program	67	0.06	120	0.75	60	0.25	60	0.25	153	0.00	460	1.31
2.1.2	Incorporate SAS concepts and criteria into the CUP Program	Incorporated into Recommendation 40 of the *LEC Regional Water Supply Plan* (**Table 7**)											
2.1.3	Develop and utilize SAS models	Incorporated into Recommendation 2.2.3											
2.2.1	Maintain and expand the IAS monitoring program	67	0.06	50	0.20	50	0.20	50	0.20	273	0.00	490	0.66
2.2.2	Incorporate IAS concepts and criteria into the CUP Program	Incorporated into Recommendation 40 of the *LEC Regional Water Supply Plan* (**Table 7**)											
2.2.3	Develop and utilize IAS models	180	0.40	50	0.20	50	0.20	TBD	0.00	TBD	0.00	280	0.80
2.3.1	Develop a model to evaluate FAS use, ASR storage, and water quality	Incorporated into the ASR Regional Study that is part of the CERP (**Table 3**)											
2.3.2	Expand the FAS ground water monitoring network	80	0.70	26	0.50	26	0.50	26	0.50	26	0.50	184	2.70
2.3.3	Develop and recognize FAS data partnerships	Ongoing with no funds or FTEs committed at this time											
2.3.4	Continue government cooperation to explore alternative desalination concentration disposal options	Pending FDEP rule changes											
	Subtotal	**394**	**1.22**	**246**	**1.65**	**186**	**1.15**	**136**	**0.95**	**452**	**0.50**	**1,414**	**5.47**
Water Source Option 3: Reclaimed Water													
See Recommendation 4.1													
Water Source Option 4: Regional Irrigation System													
4.1	Conduct and implement a regional irrigation system study	570	0.25	1,500	0.00	7,250	0.00	7,250	0.00	0	0.00	16,570	0.25
	Subtotal	**570**	**0.25**	**1,500**	**0.00**	**7,250**	**0.00**	**7,250**	**0.00**	**0**	**0.00**	**16,570**	**0.25**
Water Source Option 5: Seawater													
See Recommendation 42 of the *LEC Regional Water Supply Plan* (**Table 7)**													
Water Source Option 6: Storage													
6.1.1	Continue government cooperation to make rule changes to the UIC Program	Pending FDEP rule changes											
6.1.2	Develop CUP Program rules to address the use of the FAS for ASR	Incorporated into Recommendation 40 of the *LEC Regional Water Supply Plan* (**Table 7**)											
6.2.1	Modify regional and local retention systems/operations	600	0.10	300	0.10	300	0.10	300	0.10	300	0.00	1,800	0.40
	Subtotal	**600**	**0.10**	**300**	**0.10**	**300**	**0.10**	**300**	**0.10**	**300**	**0.00**	**1,800**	**0.40**

Water Source Options and Recommendations		Plan Implementation Costs ($1,000s and FTEs)											
		FY 2002		FY 2003		FY 2004		FY 2005		FY 2006		Total Cost FY 2002-FY 2006	
		$	FTE	$	FTE	$	FTE	$	FTE	$	FTE	$	FTE
Water Source Option 7: Surface Water													
7.1	Develop a Caloosahatchee River ASR pilot project	See the CERP (**Table 3**) subsection of the Districtwide Water Resource Development Efforts section											
7.2	Implement the C-43 Storage Project												
7.3	Complete the Southwest Florida Study	See the CERP (**Table 3**) subsection of the Districtwide Water Resource Development Efforts section											
7.4	Establish MFLs for the Caloosahatchee River and Estuary	Complete											
7.5	Implement well abandonment programs	See Recommendation 3.3 in the *UEC Water Supply Plan* section (**Table 5**)											
7.6	Analyze saltwater influence	Incorporated into Recommendation 2.1.1											
7.7	Continue government cooperation to make rule changes to the UIC Program	Pending FDEP rule changes											
7.8	Evaluate the environmental needs of the Southwest Florida Study	See the CERP (**Table 3**) subsection of the Districtwide Water Resource Development Efforts section											
Water Source Option 8: Related Implementation Strategies													
8.1.1	Incorporate criteria into the CUP Program	See Recommendation 40 in the *LEC Regional Water Supply Plan* section (**Table 7**)											
8.1.2	Establish MFLs for the Caloosahatchee River and Estuary and the LWC aquifer systems	Complete											
8.2	Cooperate with other government entities to accomplish changes in ASR and desalination disposal regulations	Pending FDEP rule changes											
8.3	Continue the Wetland Drawdown Study and use knowledge in the rulemaking process	See the Districtwide Water Resource Development Efforts section (**Table 1**)											
8.4	Make ground water models, data, and other relative information referenced in the *LWC Water Supply Plan* available to the public	Ongoing											
	Subtotal	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**
	TOTAL	**1,564**	**1.57**	**2,046**	**1.75**	**7,736**	**1.25**	**7,686**	**1.05**	**752**	**0.50**	**19,784**	**6.12**

Summary of the Quantity of Water to Be Made Available by Implementation of the LWC Water Supply Plan

Table 9. Water Made Available Through Implementation of the *LWC Water Supply Plan* by FY 2002 and by FY 2006

Recommendation		Estimated Water Made Available (MGD)	
		By FY02	By FY06
1	**Water Conservation Program**		
1.1	Water Conservation Program	1.3	4.5
1.2	MILs	4.3	21.3
2	**Ground Water Resources**		
2.1.1	SAS Monitoring	0.0	0.0
2.1.2	SAS Rulemaking	0.0	0.0
2.1.3	SAS Modeling	0.0	0.0
2.2.1	IAS Monitoring	0.0	0.0
2.2.2	IAS Rulemaking	0.0	0.0
2.2.3	IAS Modeling	0.0	0.0
2.3.1	FAS Model Development	0.0	0.0
2.3.2	FAS Monitoring	0.0	0.0
2.3.3	FAS Data Partnerships	0.0	0.0
2.3.4	FAS Government Cooperation	0.0	0.0
3	**Reclaimed Water**	63.0	71.5
4	**Regional Irrigation System**		
4.1	Regional Irrigation System Study	0.0	0.0
5	**Seawater**	0.0	0.0
6	**Storage**		
6.1.1	ASR Water Quality	0.0	0.0
6.1.2	ASR Rulemaking	0.0	0.0
6.2.1	Regional and Local Retention	0.0	54.0
6.3	Reservoirs	see 7.2	see 7.2
7	**Surface Water**		
7.1	CWMP - Caloosahatchee River ASR Pilot Project	see 7.2	see 7.2
7.2	CWMP - C-43 Storage Project	0.0	0.0
7.3	CWMP - Southwest Florida Study	0.0	0.0
7.4	CWMP - Minimum Flows and Levels	0.0	0.0
7.5	CWMP-Well Abandonment Program	0.0	0.0
7.6	CWMP-Saltwater Influence	0.0	0.0
7.7	CWMP - Permitting Issues Associated with ASRs	0.0	0.0
7.8	Southwest Florida Study	0.0	0.0
8.0	**Related Implementation Strategies**		
8.1.1	Districtwide Rulemaking	0.0	0.0
8.1.2	Minimum Flows and Levels	0.0	0.0
8.2	Government Cooperation	0.0	0.0
8.3	Wetlands Drawdown Study	0.0	0.0
8.4	Public Information	0.0	0.0
	TOTAL	**68.6**	**151.3**

2000 Lower East Coast Regional Water Supply Plan

Plan Organization

Water resource development options for the Lower East Coast (LEC) planning area are grouped by the scope and nature of the recommended projects as follows:

1. Ongoing projects from the *Interim Plan for Lower East Coast Regional Water Supply* (LEC Interim Plan) (SFWMD, 1998b)
2. Other federal, state, and SFWMD projects
3. CERP projects
4. Recommendations to the CERP resulting from analysis performed during the LEC regional water supply planning and development process
5. Recommendations to the CERP from the *Caloosahatchee Water Management Plan* (SFWMD, 2000e)
6. Operational recommendations resulting from LEC water supply planning and development process analysis
7. CUP and resource protection projects
8. Other water resource development projects

Information Provided

The summary of each category of recommendations includes a description, a list of recommendations, funding sources, implementing agencies, costs to nonfederal entities (primarily the SFWMD), and estimates of total SFWMD staff time required in FTEs to implement the option. The schedule and costs to implement the recommendations in the *LEC Regional Water Supply Plan* (SFWMD, 2000d) over the next five fiscal years are summarized in **Table 10** at the end of this section. In addition, estimates are provided (to the extent this can be determined) of the amount of water that will be made available for each recommendation in **Table 11**, also at the end of this section.

The water resource development projects are listed to correspond with the numbered recommendations in the *LEC Regional Water Supply Plan*. For each option, a description is provided of changes in the plan scope or implementation that have occurred during the past year since the last *Five-Year Water Resource Development Work Program* report (SFWMD, 2000a) was published.

Water Resource Development Options and Recommendations

Ongoing Projects from the LEC Interim Plan

Definition/Discussion

Significant water supply planning and development projects were initiated with the completion of the LEC Interim Plan, approved by the Governing Board in March 1998. A number of these projects involve capital expenditures on the part of the SFWMD or its partners, and must be continued to completion. The majority of these projects will be concluded prior to the next update of the LEC regional water supply plan and the five-year projections reflect this fact.

Recommendations

1. Improve regional saltwater intrusion management
2. Refine the FAS Ground Water Model
3. Develop a northern Palm Beach County comprehensive water management plan
4. Construct and operate the Eastern Hillsboro Regional ASR Pilot Project
5. Construct and operate the Hillsboro (Site 1) Reservoir Pilot Project
6. Establish Lake Worth Lagoon minimum/maximum flow targets
7. Develop and implement a northern Broward secondary canals recharge network
8. Implement a design study for an interconnected water supply system in southeastern Broward County
9. Evaluate urban environmental enhancement in Broward County
10. Construct the Miami-Dade Water and Sewer Department (WASD) Utility ASR
11. Establish Biscayne Bay minimum and maximum flow targets

Total Costs of Projects/Recommendations

The estimate in the *LEC Regional Water Supply Plan* for the total cost of implementing these options was approximately $34 million. The cost to the SFWMD of implementing these programs for the five-year period from 2002 to 2006 is approximately $14 million with estimated needs of 17.5 FTEs.

Quantity of Water Potentially Available

See **Table 11** for the quantity of water potentially available by FY 2002 and by FY 2006.

Funding Sources

- Regional saltwater intrusion management – SFWMD and USGS, with local cost sharing by counties
- FAS Ground Water Model - USACE, USGS, SFWMD, water users, and local utilities

- Northern Palm Beach County Comprehensive Water Management Plan - City of West Palm Beach, Indian Trail Improvement District, Palm Beach County, CERP and other federal sources, and SFWMD
- Eastern Hillsboro Regional ASR Pilot Project - Palm Beach County and SFWMD
- Hillsboro (Site 1) Reservoir Pilot Project – SFWMD
- Lake Worth Lagoon minimum/maximum flow targets - Palm Beach County, USACE, and SFWMD
- Northern Broward Secondary Canals Recharge Network - Broward County, city of Fort Lauderdale, and SFWMD
- Southeast Broward County Interconnected Water Supply System - the cities of Hallandale Beach, Hollywood, and Dania Beach; Broward County; SFWMD; and the Seminole Tribe
- Broward County urban environmental enhancement – Broward County and SFWMD
- Miami-Dade WASD Utility ASR - Miami-Dade WASD, SFWMD, and USEPA
- Biscayne Bay minimum and maximum flow targets - Florida Forever Act, National Ocean and Atmosphere Administration, USGS, CERP, and specific appropriation funds from the Florida Legislature

Implementing Agencies

- Regional saltwater intrusion management – SFWMD
- FAS Ground Water Model - SFWMD
- Northern Palm Beach County Comprehensive Water Management Plan - City of West Palm Beach, Indian Trail Improvement District, and SFWMD
- Eastern Hillsboro Regional ASR Pilot Project – Palm Beach County
- Hillsboro (Site 1) Reservoir Pilot Project – SFWMD
- Lake Worth Lagoon minimum/maximum flow targets - Palm Beach County and SFWMD
- Northern Broward Secondary Canals Recharge Network - Broward County, city of Fort Lauderdale, SFWMD, and other local governments
- Southeast Broward County Interconnected Water Supply System - Cities of Hallandale Beach, Hollywood, and Dania Beach; Broward County; SFWMD; and the Seminole Tribe
- Broward County urban environmental enhancement - Broward County and SFWMD
- Miami-Dade WASD Utility ASR - Miami-Dade WASD

- Biscayne Bay minimum and maximum flow targets - SFWMD, Miami-Dade County Department of Environmental Resource Management, and USACE

Summary of Changes/Implementation from the Previous Work Program

Improve Regional Saltwater Intrusion Management. Many improvements to regional saltwater intrusion management were begun in FY 2001 and are planned for FY 2002. Geophysical logs were produced under contract and these services will continue as new wells are drilled. During FY 2001, the USGS continued to monitor six new wells; increased the size of the Miami ground water monitoring network by 57 wells; designed and initiated a new network; and began efforts to monitor six saltwater intrusion, vertical conductivity, profile wells. These efforts by the USGS will continue into FY 2002. A Well Automation Data Logger Task Force was convened in FY 2001 to assess conditions and needs of the SFWMD regional ground water monitoring network and the recommendations of the task force will be implemented in FY 2002. Also, a technical memorandum was completed to address network improvement methods; business requirements were identified to address improvements, efficiency, and future goals for the drilling program and drill rig leases; and funding was provided to drill new wells including shallow monitor and test wells. During FY 2002, saltwater intrusion maps and reports will be produced.

Floridan Aquifer System Ground Water Model. Campbell data loggers were installed at seven existing FAS sites in the LEC planning area. Access agreements to install additional data loggers at six utilities with test well sites with injection wells in Broward County (C-13, Oakland Park) and in Miami-Dade County (Krome Ave, NW Miami Dade) were initiated and efforts to complete these agreements will continue in FY 2002. A FAS Exploratory Drilling Program technical publication was completed documenting the findings from FAS exploratory well construction and testing programs at two Palm Beach County sites, including South Bay and Lake Lytal. In FY 2002, the coordination process will be established with the CERP for joint development of a ground water model to address both LEC planning area and CERP needs.

Northern Palm Beach County Comprehensive Water Management Plan. The Northern Palm Beach County Comprehensive Management Plan was approved by the SFWMD's Governing Board in April 2002.

North Palm Beach County CERP Lake Worth Lagoon Restoration Project. The North Palm Beach County CERP Lake Worth Lagoon Restoration Project is Part 1 of six components that are being initiated by the Northern Palm Beach County Comprehensive Water Management Plan. The project includes sediment removal in the C-51 Canal and sediment removal or trapping within a distance of 2.5 miles downstream of the confluence of the C-51 Canal and the Lake Worth Lagoon. A prototype project will be conducted to determine the feasibility and potential cost of trapping and removing sediments (with the associated disposal costs). The purpose of this project is to improve water quality and allow for the reestablishment of sea grasses and benthic communities. The elimination of the organically enriched sediment from the C-51 Canal discharge will provide for long-term improvements to the lagoon and enable success for additional habitat restoration and enhancement projects planned by Palm Beach County. A draft project management plan was approved in June 2002. A project implementation report is scheduled for completion in 2003. Dredging is scheduled to begin in 2004.

Eastern Hillsboro Regional ASR Pilot Project. Construction of the Hillsboro Regional ASR Pilot Project is 75 percent complete. Testing will occur in 2003 and 2004, with final administrative closure in 2005.

Hillsboro (Site 1) Reservoir Pilot Project. The need for the Hillsboro (Site 1) Pilot Project was deferred due to budget constraints. The current CERP schedule calls for construction of the reservoir by October 2007.

Lake Worth Lagoon Minimum/Maximum Flow Targets. The Lake Worth Lagoon Study is being conducted to develop a model that will provide a greater understanding of the circulation patterns within the lagoon and predict the response of the system to different quantities and durations of discharges from the major water control structures. Data collection to calibrate the model began in FY 2001. Two four-week sampling periods concluded on September 28, 2001, and October 1, 2001. The final four-week sampling period has concluded on November 8, 2001. Two public presentations of the study results will be made during the second quarter of calendar year 2002. Staff will be trained to use the model.

Broward County Water Resource Development Projects. The Broward County Water Resource Development Projects consist of Recommendations 7 through 9 from the *LEC Regional Water Supply Plan*. These projects are the Northern Broward Secondary Canals Recharge Network, the Southeast Broward County Interconnected Water Supply System, and the Broward County Urban Environmental Enhancement. Recommendations 7 and 9 have been contracted to the Broward County Department of Planning and Environmental Protection, which has integrated them into Broward's Countywide Integrated Water Resource Plan. Data collection for the plan has been completed; assessment, design/implementation, and construction were initiated in FY 2001 and FY 2002; and the plan should be completed by FY 2005. Implementation of Recommendation 8, the Southeast Broward County Interconnected Water Supply System is proceeding on a continuum.

Miami-Dade Water and Sewer Department Utility ASR. The SFWMD is awaiting a decision from Miami-Dade WASD regarding matching funds. The utility has recently expressed a willingness to offer financial support to implement new projects in FY 2003.

Biscayne Bay Minimum and Maximum Flow Targets. In FY 2002, a white paper with proposed background and approach on establishing minimum and maximum flow targets for the Biscayne Bay will be prepared. A small set of scenarios will be simulated in Biscayne Bay hydrodynamic model and, if feasible, a preferred freshwater flow regime will be determined for the estuary. This effort will result in refined SFWMD flow calculation models for spillways, ecosystem baseline data collection near shore, and analysis of data collected during creek restoration experiments. Minimum and maximum flows are to be established by FY 2004 per the Priority Water Body List.

Other Federal, State, or SFWMD Projects

Definition/Discussion

Two groups of projects have been included in this category. The first (Recommendation 12) includes those Critical Projects in the LEC planning area for which the SFWMD is the local sponsor. The Critical Project Program was authorized by the United States Congress under the Water Resource Development Act of 1996 to expeditiously implement restoration projects that are deemed critical to the restoration of the South Florida ecosystem. The second group (Recommendations 13 through 16) are SFWMD-initiated projects that reflect recommendations developed in the *Caloosahatchee Water Management Plan* (SFWMD, 2000e) and a recommendation regarding mobile irrigation labs (MILs) that supports similar recommendations in other SFWMD water supply plans.

Recommendations

12. Implement Critical Projects
13. Implement well abandonment programs
14. Investigate saltwater influence at S-79 (Caloosahatchee basin)
15. Cooperate with other government entities to resolve permitting issues associated with ASR systems and reclaimed water and reuse
16. Maintain and add MILs

Total Costs of Projects/Recommendations

The Critical Projects and the MILs are discussed in the Districtwide Water Resource Development section. The costs for these activities are listed in **Table 2** and **Table 1**, respectively. Implementing the well abandonment programs, investigating saltwater influence at S-79, and resolving permitting issues associated with ASR systems and reclaimed water and reuse (Recommendations 13 through 15) will each require at least 4 FTEs during the next five years for a total of 12 FTEs.

Quantity of Water Potentially Available

See **Table 11** for the quantity of water potentially available by FY 2002 and by FY 2006.

Funding Sources

- Critical Projects – SFWMD and state and federal government
- Well abandonment programs – No new sources have been identified; former sources included landowners, local government, and water resource development
- Saltwater influence at S-79 – USACE and local governments
- Permitting issues associated with ASR systems and reclaimed water and reuse – SFWMD and FDEP

- Maintain and add MILs – SFWMD, FDEP, USDA, NRCS, Soil and Water Conversation District user fees, and utilities

Implementing Agencies

- Critical Projects – SFWMD and USACE
- Well abandonment programs - SFWMD
- Saltwater influence at S-79 – SFWMD
- Permitting issues associated with ASR systems and reclaimed water and reuse – SFWMD, FDEP, and USEPA
- Maintain and add MILs – USDA, NRCS, FDACS, FDEP, Soil and Water Conversation District user fees, and utilities

Summary of Changes/Implementation from the Previous Work Program

Critical Projects. The total cost of the C-4 Water Control Structure has been modified and is approximately $1.7 million higher (130 percent higher) than the original cost estimates. The project has been delayed 120 days due to contract modifications. The current total cost of the Western C-11 Water Quality Improvement Project ($11,749,993) is also higher than the initial estimated cost of $9.6 million. **Table 2** in the Districtwide Water Resource Development Efforts section summarizes the nonfederal costs of the Critical Projects over the next five fiscal years.

Well Abandonment Program. The Well Abandonment Program was discontinued in 1991. No efforts have been made to continue the program for the Caloosahatchee Basin in FY 2001 or FY 2002. The program's former "Data Flex" DOS database is being replaced by the new SFWMD WILMA database, which should be fully active by the end of FY 2003. The WILMA database will include historic information about wells that have been plugged, location coordinates, plugging cost, and geophysical logs that have been digitized. Some water quality data values, such as chloride and total dissolved solids, will be included.

Mobile Irrigation Labs. In FY 2001, $162,000 was spent in the LEC planning area (including administrative fees) on two MILs: an agriculture lab in Miami-Dade County and an urban lab in Palm Beach County. In FY 2002, the same sum ($162,000) will be spent on these two labs. The MILs have been incorporated into the Comprehensive Water Conservation Program that is discussed in the Districtwide Water Resource Development Efforts section (Table 1).

Comprehensive Everglades Restoration Plan Projects

Definition/Discussion

The keys to Everglades restoration, as determined in *the Central and Southern Florida Project Comprehensive Review Study* (USACE and SFWMD, 1999), referred to as the Restudy, are to increase the amount of water available, ensure adequate water quality, and reconnect the parts of the system that have interrupted historical drainage patterns. One component of this effort is to annually regain, for beneficial use, about two million acre-feet of excess water that is

currently being discharged to tide for flood control. The recommendations made within the Restudy (i.e., structural and operational modifications) are being further refined and will be implemented in the CERP. Analyses completed as part of the *LEC Regional Water Supply Plan* confirmed that the Restudy projects scheduled for completion by 2020 are extremely beneficial for meeting MFLs and natural system restoration targets, including reducing high water flows to estuaries, and providing water to meet urban and agricultural demands throughout the LEC planning area. Many of the proposed projects have significant water resource benefits that need to be considered in this plan.

The CERP is considered in its entirety as one component of the *LEC Regional Water Supply Plan*'s program of water resource development projects. Completion of the CERP projects that affect the LEC and Caloosahatchee planning areas by 2020, and timely implementation according to the schedule in the Restudy are crucial to meeting the objectives of the *LEC Regional Water Supply Plan*. The plan identified 63 CERP projects in the LEC planning area. Details of these projects along with estimates of funding requirements can be found in the *LEC Regional Water Supply Plan*, the *Caloosahatchee Water Management Plan*, and the Restudy documentation. Any changes to scheduling of the plan will be consistent with the five-year update of the *LEC Regional Water Supply Plan*.

Although the primary purpose of the CERP is to provide environmental restoration for the Everglades, an ancillary benefit is that more water will also be available to meet urban and agricultural needs. The CERP Projects within the LEC planning area, in aggregate, will provide more than sufficient water to meet projected environmental, urban, and agricultural water needs in the LEC planning area for the next 20 years.

Recommendations

17. Implement the CERP projects that affect the LEC planning area and the Caloosahatchee basin

Total Costs of Projects/Recommendations

A listing of individual CERP components in the various SFWMD planning regions and their costs is provided in **Table 3** in the Districtwide Water Resource Development Efforts section.

Quantity of Water Potentially Available

See **Table 11** for the quantity of water potentially available by FY 2002 and by FY 2006.

Funding Sources

The federal government will fund approximately 50 percent of the cost of the CERP projects, and the remaining 50 percent will be funded by the SFWMD and the State of Florida. The Miccosukee Indian Tribe, the Seminole Indian Tribe, and Miami-Dade County may also provide funding.

Implementing Agencies

The SFWMD, the State of Florida, and the USACE will implement the projects. Other local sponsors are also involved including the Miccosukee Indian Tribe, the Seminole Indian Tribe, and Miami-Dade County.

Summary of Changes/Implementation from the Previous Work Program

Implementation information on CERP projects is available in the *CERP Master Implementation Schedule, Update 1.0* (USACE and SFWMD, 2001).

Recommendations to the CERP from *the LEC Regional Water Supply Plan*

Definition/Discussion

The *LEC Regional Water Supply Plan* analyses indicated that refinement of some of the CERP projects may improve their performance. The *LEC Regional Water Supply Plan* recommends that these modifications be analyzed and incorporated into the planning and design of the CERP projects during the project implementation reporting process, and the restoration coordination and verification (RECOVER) process, and into any operational changes for these features.

Recommendations

18. Determine the most effective method to provide water for C-51 backpumping without affecting the location of S-155A
19. Restore or improve hydropatterns within Water Conservation Area (WCA) 2B
20. Conduct more detailed planning and design studies to determine final sizes, depths, and configurations of the Everglades Agricultural Area (EAA) Storage Reservoirs
21. Develop an operating schedule for the L-8 Basin Project that can optimize the use of stored ASR water to meet EAA demands
22. Optimize the operation of the C-51 Regional Ground Water Project's ASR features
23. The West Miami-Dade Reuse Feasibility Study should reevaluate the volume of reuse water needed, consider other uses of reclaimed water, and analyze alternative sources
24. Implement and periodically update the WSE regulation schedule for Lake Okeechobee
25. Identify seepage barrier locations in the Lake Belt Storage Area Project and coordinate with the mining industry to protect the barriers
26. Develop and implement rain-driven operations for WCAs 2B, 3A, 3B, and Everglades National Park by 2005 and for WCA 2A by 2010
27. Change selective coastal wellfield locations and operations as soon as possible

Total Costs of Projects/Recommendations

These analyses, design improvements, and changes to management practices may be implemented at minimal cost to the SFWMD, since they will be conducted/incorporated as part of the USACE and SFWMD detailed design process and the development of project implementation reports for CERP components already addressed under Recommendation 17 and listed in **Table 3** in the Districtwide Water Resource Development section.

Quantity of Water Potentially Available

See **Table 11** for the quantity of water potentially available by FY 2002 and by FY 2006.

Funding Sources

The SFWMD and the USACE will provide most of the funding for the recommended projects.

Implementing Agencies

The SFWMD and USACE will implement most of the recommended projects.

Summary of Changes/Implementation from the Previous Work Program

Relocation of S-155A. The S-155A structure is going to be relocated. On May 1, 2001, the USACE awarded the construction contract to ARTEM, Inc., in the amount of $3,654,343. The construction of the new S-155A structure is anticipated to be complete in December 2002.

Implementation of the WSE Regulation Schedule for Lake Okeechobee. The WSE schedule was adopted by the SFWMD and the USACE in July 2000.

Everglades Rain-Driven Operations. In FY 2001, the Rainfall-Driven Operational Plan statement of work was developed, discussed, and approved by SFWMD and Everglades National Park staff. In FY 2002, the SFWMD issued a request for proposals and selected the most qualified contractor to develop the rainfall-driven formulas. The total project cost is $152,000.

Change Coastal Wellfield Operations. The identified utilities are evaluated for alternate wellfield locations and operation schedules as part of the CUP process applications. This occurs on a continual basis.

Recommendations to the CERP from the *Caloosahatchee Water Management Plan*

Definition/Discussion

The modeling conducted as part of the *Caloosahatchee Water Management Plan* (SFWMD, 2000e) and incorporated into the *LEC Regional Water Supply Plan* used revised

Caloosahatchee Basin hydrology and demands from those used in the Restudy. This assessment showed higher demands and lower runoff from the basin, and consequently less water was available to be backpumped into Lake Okeechobee for storage. The *Caloosahatchee Water Management Plan* identified the need for additional storage within the basin using a regional optimization approach. It was determined that underground storage (ASR systems) must be able to tolerate extended withdrawals of 220 MGD and that at least 220,000 acre-feet of aboveground storage (reservoirs plus other storage options) was needed.

Recommendations

28. Develop a Caloosahatchee River ASR pilot project
29. Implement the C-43 Storage Project
30. Complete the Southwest Florida Study

Total Costs of Projects/Recommendations

These projects have been incorporated into the CERP. Costs are listed in **Table 3**.

Quantity of Water Potentially Available

See **Table 11** for the quantity of water potentially available by FY 2002 and by FY 2006.

Funding Sources

The SFWMD and the USACE will provide most of the funding for the recommended projects.

Implementing Agencies

The SFWMD and the USACE will implement the recommended projects.

Summary of Changes/Implementation from the Previous Work Program

The summaries for these three recommendations are discussed in the Surface Water (water source option 7) subsection in the 2000 Lower West Coast Water Supply Plan section of this work plan.

Operational Recommendations

Definition/Discussion

Changes in the operation of the Central and Southern Florida Project are needed to accommodate the future construction of proposed major water resource development features. Revised systemwide operational protocols will also be required to assure that projected water supply plan performance targets are met and expected benefits are achieved. A process to

periodically review and recommend potential short-term deviations to the systemwide operational protocols is needed. This process must consider variations in weather and hydrologic conditions and identify opportunities for short-term operational deviations that will offset, to some extent, possible impacts of such events. Some measure of operational flexibility is needed that incorporates public input and SFWMD Governing Board approval prior to implementation. Changes must be consistent with the Water Resource Development Act of 2000's (WRDA 2000) requirement of existing and legal reservation.

Over the last six years, extreme wet periods have resulted in abnormally high lake levels and the loss of littoral zone vegetation communities. A drought period or drawdown of Lake Okeechobee would provide a number of ecological benefits, but may also promote torpedo grass and melaleuca expansion in the littoral zone. To address this issue, a vegetation management plan is needed to help manage torpedo grass and melaleuca expansion within Lake Okeechobee.

Recommendations

31. Develop systemwide operational protocols and a periodic operational deviation process
32. Develop periodic operational flexibility
33. Develop a Lake Okeechobee vegetation management plan

Total Costs of Projects/Recommendations

During FY 2002 through FY 2006, the SFWMD will spend a total of $750,000 and 9 FTEs on the operational recommendations from the *LEC Regional Water Supply Plan*.

Quantity of Water Potentially Available

See **Table 11** for the quantity of water potentially available by FY 2002 and by FY 2006.

Funding Sources

Operational protocols and flexibility will be funded by the SFWMD, the USACE, and the FDEP. The development of a Lake Okeechobee vegetation management plan is being funded by the SFWMD, the FDEP, and the USACE. Funding for the vegetation management will also be coordinated with the State of Florida's fire permitting agency (Division of Forestry, FDACS).

Implementing Agencies

Operational protocols and flexibility will be implemented by the SFWMD. Lake Okeechobee vegetation management will be implemented by the SFWMD, the FDEP, and the USACE.

Summary of Changes/Implementation from the Previous Work Program

Lake Okeechobee Vegetation Management Plan. In FY 2001, the SFWMD coordinated the onset of torpedo grass management in the marsh area of Lake Okeechobee. A total of $500,000 was spent from two funds: $400,000 from a Florida Legislature special appropriation and $100,000 from the FDEP Aquatic Plant Control Trust Fund. A Melaleuca and Brazilian Pepper Control Program was also conducted by ground and aerial application techniques to effectively contain and progressively reduce exotic plant populations within the lake's littoral zone. The program consisted primarily of a ground-based herbicide application, with some aerial application within the western littoral area. Ground crews completed melaleuca, Brazilian pepper and Australian pine treatment along the eastern side of the lake, from the Port Mayaca lock to the city of Belle Glade. Most of the remaining large melaleuca and Brazilian pepper monoculture in the western marsh were treated by aerial application during January 2001. Approximately 1,000 acres of melaleuca and 500 acres of Brazilian pepper were treated.

In FY 2002, FDEP committed $1 million to the control of torpedo grass. The initial, five-year management effort will be completed in 2005 and maintenance efforts will continue thereafter.

The USACE continues to manage the traditional aquatic weed treatment program in Lake Okeechobee, spending approximately $600,000 to $800,000 annually. The USACE maintains an Interagency Lake Okeechobee Vegetation Management Plan that defines agreed-upon methods for vegetation management on the lake.

Consumptive Use Permitting and Resource Protection Projects

Definition/Discussion

Implementation of the *LEC Regional Water Supply Plan* through CUP and resource protection actions will take place consistent with Florida Law, utilizing the assurances framework developed by the Governor's Commission for a Sustainable South Florida and included in the CERP and further defined through WRDA 2000. Rulemaking to implement the regulatory recommendations of the plan will constitute a significant effort during the next several years. Rulemaking will include water reservations and numerous CUP criteria, some of which are interrelated and cumulatively define the availability of water for consumptive uses and water resource protection. It is recommended in the *LEC Regional Water Supply Plan* that certain rulemaking efforts be grouped in phases to allow for cumulative analysis of their water resource and consumptive use implications.

Another goal of the rulemaking schedule is to adopt rules as the technical information becomes available. Initial rulemaking has proceeded for concepts that have been sufficiently identified and evaluated, such as establishment of MFLs for the Everglades, Lake Okeechobee, the Biscayne Aquifer, and the Caloosahatchee River. These were established in September 2000.

Recommendations

34. Implement water reservations
35. Establish Biscayne Bay, Florida Bay, St. Lucie Estuary, and the southern coastal Biscayne aquifer MFLs
36. Develop and implement MFL criteria for the Rockland Marl Marsh
37. Establish MFLs for Florida Bay
38. Develop and implement MFL recovery strategies
39. Establish MFL Monitoring Systems
40. Implement CUP, rulemaking, and resource protection projects

Total Costs of Projects/Recommendations

The estimated total cost to the SFWMD of these projects over the next five years will be $7.28 million and 41 FTEs.

Quantity of Water Potentially Available

See **Table 11** for the quantity of water potentially available by FY 2002 and by FY 2006.

Funding Sources

Funding for all of the CUP and resource protection projects will be provided by the SFWMD.

Implementing Agencies

The SFWMD will establish a water resources policy consistent with the WRDA 2000 and will implement water reservations and CUP/rulemaking projects. It will also establish MFLs and recovery strategies and perform associated monitoring. The SFWMD and Everglades National Park will develop MFLs for Florida Bay.

Summary of Changes/Implementation from the Previous Work Program

Water Reservations. The planning process for developing water reservations is being developed in partnership between the USACE, the SFWMD, and the public. A white paper was drafted and is presently under review. Southern Golden Gate and Water Preserve Area project implementation reports are scheduled in FY 2002. Both need a reservation of water to proceed to construction funding.

Establish MFLs for Priority Water Bodies and Monitor for Compliance. Recommendations 35 through 39 require the establishment of MFL criteria, development and implementation of recovery strategies, and the establishment of a system for monitoring MFLs. During FY 2001. The MFLs were adopted for Lake Okeechobee, the Everglades, the Biscayne Aquifer, and the Caloosahatchee River. The first drafts of the Loxahatchee River MFL and St. Lucie MFL documents were released for agency and public comment and the documents were peer

reviewed. Based on comments and recommendations received from the peer reviews and the public, SFWMD staff are in the process of revising the draft documents. Research efforts have continued on Florida Bay to gather information on the effects of freshwater flow on resources in the bay in preparation of establishing MFLs for this water body.

CUP, Rulemaking, and Resource Protection Projects. The CUP, rulemaking, and resource protection projects recommended in all of the regional water supply plans have been incorporated into Recommendation 40 of the *LEC Regional Water Supply Plan*. Since most of the permitting, rulemaking, and resource protection issues originate in the LEC planning area, the funding is allocated under the LEC. The SFWMD has initiated numerous rulemaking efforts consistent with the regional water supply plans. Workshops and public meetings on rule modifications are expected to continue through FY 2003.

Other Water Resource Projects

Definition/Discussion

The final group of water resource projects recommended in the *LEC Regional Water Supply Plan* is Other Water Resource Projects. This category contains five recommendations that did not fit into the other seven groups. One recommendation is for the development of a Districtwide Comprehensive Water Conservation Program, which was also recommended in the other regional water supply plans. The remaining recommendations are for evaluation and feasibility projects that were identified during the LEC regional water supply and integrated water management planning and development processes. These feasibility projects will be completed and used in the formulation of the next update of the plan, which will be completed by 2005.

Recommendations

41. Develop a comprehensive water conservation program
42. Conduct a seawater reverse osmosis treatment facilities feasibility study
43. Conduct a feasibility study for a reclaimed water system in northern Palm Beach County
44. Conduct an indirect aquifer recharge feasibility study
45. Conduct an evaluation of high volume surface water ASR testing in Taylor Creek

Total Costs of Projects/Recommendations

The costs of developing the Comprehensive Water Conservation Program are discussed in the Districtwide Water Resource Development Efforts section (see **Table 1**). The evaluation of high volume surface water ASR testing in Taylor Creek has been incorporated into the CERP ASR pilot projects listed in **Table 3**. The remaining cost to the SFWMD of these projects is estimated at $990,000 and 5.2 FTEs over the next five years.

Quantity of Water Potentially Available

See **Table 11** for the quantity of water potentially available by FY 2002 and by FY 2006.

Funding Sources

Funding for the Comprehensive Water Conservation Program, the reverse osmosis treatment feasibility study, and the evaluation of ASR in Taylor Creek will be provided by the SFWMD. The SFWMD, water users, and local utilities will fund the Feasibility Study for a Northern Palm Beach County Reclaimed Water System. Funding for the Indirect Aquifer Recharge Project may be obtained from the SFWMD, counties, or local utilities.

Implementing Agencies

Most of these projects will be implemented by the SFWMD. Interested public water utilities may also participate in the reverse osmosis project. The FDEP, the SFWMD, counties, or local utilities may participate in implementation of an indirect aquifer recharge project

Summary of Changes/Implementation from the Previous Work Program

Comprehensive Water Conservation Program. In FY 2001, the SFWMD created an emergency management response team to address water shortage restrictions in the LEC planning area. Activities included the issuance of variances to water use permits and local water conservation public relations in response to the emergency. In FY 2002, the Water Supply Department is funding the creation of a new Water Conservation section. This section will address water supply development through the Alternative Water Supply Cooperative Funding Program in addition to addressing total supplies that will be made available. The Districtwide Comprehensive Water Conservation Program is discussed in the Districtwide Water Resource Development Efforts section of this document.

Seawater Reverse Osmosis Treatment Facilities. The Seawater Reverse Osmosis Treatment Facility Feasibility Study was completed in May 2002. Funds to conduct this study in the amount of $66,000 and 0.2 FTEs were carried over from FY 2001. An additional 0.4 FTEs have been allocated to the study for FY 2002.

The preliminary cost from the study indicates an order-of magnitude cost of $3.4 per 1,000 gallons supplied for coastal seawater desalination without the benefits of colocation with a suitable power plant. The study evaluated 23 sites. Two sites, Fort Myers in Lee County and Port Everglades in Broward County, were considered highly desirable and technically feasible. These sites were recommended for more detailed evaluation and cost analysis.

Based on the study, the capital cost of the colocated facility at Fort Myers would be $17.3 million, yielding a unit cost of $1.33 per 1,000 gallons for a 10-mgd facility. The capital cost of the 25-mgd facility would be $35.5 million, yielding a unit cost of $1.16 per 1,000 gallons. The estimated capital cost of the colocated facility at Port Everglades was $37.6 million, yielding a unit cost of $2.40 per 1,000 gallons for a 10-mgd facility. The corresponding estimated capital cost of a 25-mgd facility was $78.6 million, yielding a unit cost of $2.14 per 1,000 gallons.

Reclaimed Water System in Northern Palm Beach County. In FY 2001, the SFWMD procured a consultant to conduct a master plan study of the feasibility of construction and operation of a reclaimed water system in northern Palm Beach County. The nine-month study included the

quantification of existing and future (2020) irrigation demands in the study area, quantifying availability of local sources, and determining the unmet needs. The study will evaluate different treatment and transmission options, institutional frameworks, and funding options. Local entities contributed $55,000 towards this project. A project team has been established to provide input throughout the study.

In FY 2002, the study will be completed and determinations will be made of the feasibility of the project. If determined feasible, the design phase of the project will be initiated. Partnerships and funding opportunities will continue to be sought to support this project.

Indirect Aquifer Recharge. In FY 2001, the SFWMD met with FDEP Secretary David Struhs and others and agreed to form a partnership to pursue indirect aquifer recharge. The SFWMD worked with Palm Beach County utilities and the Southeast District of the FDEP in support of using the Wakodahatchee Wetlands Project as a pilot for this project. The interagency project team will be reconvened to identify issues and concerns, and develop strategies to address them. A pilot project will be developed based on the team's discussions.

High Volume Surface Water ASR Testing in Taylor Creek. The testing of high volume surface water ASR in Taylor Creek is currently not feasible. The testing has been incorporated into the CERP ASR pilot projects for further evaluation.

Summary of LEC Regional Water Supply Plan Costs and Schedules

Table 10. Summary of Estimated Schedule and SFWMD Costs for Water Resource Development Recommendations in the *LEC Regional Water Supply Plan*

	Water Source Options and Recommendations	Plan Implementation Costs ($1,000s and FTEs)											
		FY 2002		FY 2003		FY 2004		FY 2005		FY 2006		Total Cost FY 2002-FY 2006	
		$	FTE	$	FTE	$	FTE	$	FTE	$	FTE	$	FTE
Ongoing Projects from the LEC Interim Plan													
1	Improve regional saltwater intrusion management	189	0.00	163.5	TBD	163.5	TBD	163.5	TBD	163.5	TBD	843	0.00
2	Refine the FAS Ground Water Model	19	1.05	99.5	TBD	99.5	TBD	99.5	TBD	99.5	TBD	417	1.05
3	Develop a northern Palm Beach County comprehensive water management plan	2,175	2.00	1,500	3.00	1,500	3.00	1,500	3.00	TBD	TBD	6,675	11.00
4	Construct and operate the Eastern Hillsboro Regional ASR Pilot Project	0	0.10	0	0.10	Complete						0	0.20
5	Construct and operate the Hillsboro (Site 1) Reservoir Pilot Project	See the CERP subsection (**Table 3**) of the Districtwide Water Resource Development Efforts section											
6	Establish Lake Worth Lagoon minimum/maximum flow targets	0	0.60	Complete								0	0.60
7-9	Implement the Broward County water resource development projects	300	0.15	700	1.50	600	1.50	Complete				1,600	3.15
10	Construct the Miami-Dade WASD Utility ASR	0	0.00	1,500	0.50	1,500	0.50	1,500	0.50	TBD	TBD	4,500	1.50
11	Establish Biscayne Bay minimum and maximum flow targets	See Recommendations 34 through 40											
	Subtotal	**2,683**	**3.90**	**3,963**	**5.10**	**3,863**	**5.00**	**3,263**	**3.50**	**263**	**0.00**	**14,035**	**17.50**
Other Federal, State, or SFWMD Projects													
12	Implement Critical Projects	See the Districtwide Water Resource Development Efforts section (**Table 2**)											
13	Implement well abandonment programs	0	1.00	0	1.00	0	1.00	0	1.00	TBD	TBD	0	4.00
14	Investigate saltwater influence at S-79	0	1.00	0	1.00	0	1.00	0	1.00	TBD	TBD	0	4.00
15	Permitting issues associated with ASR systems and reclaimed water and reuse	0	1.00	0	1.00	0	1.00	0	1.00	TBD	TBD	0	4.00
16	Maintain and add MILs	See the Districtwide Water Resource Development Efforts section (**Table 1**)											
	Subtotal	**0**	**3.00**	**0**	**3.00**	**0**	**3.00**	**0**	**3.00**	TBD	TBD	**0**	**12.00**
Comprehensive Everglades Restoration Plan Projects													
17	Implement the CERP projects that affect the LEC planning area and the Caloosahatchee basin	See the CERP subsection (**Table 3**) in the Districtwide Water Resource Development Efforts section											
Recommendations to the CERP from the *LEC Regional Water Supply Plan*													
18	C-51 backpumping/location of S-155A	No additional costs beyond those listed in the CERP table (**Table 3**) in the Districtwide Water Resource Development Effort section											
19	Restore or improve hydropatterns within WCA-2B												
20	EAA Storage Reservoirs design study												
21	L-8 Basin Project operating schedule	No additional costs beyond those listed in the CERP table (**Table 3**) in the Districtwide Water Resource Development Effort section											

Water Source Options and Recommendations		Plan Implementation Costs ($1,000s and FTEs)											
		FY 2002		FY 2003		FY 2004		FY 2005		FY 2006		Total Cost FY 2002-FY 2006	
		$	FTE	$	FTE	$	FTE	$	FTE	$	FTE	$	FTE
22	C-51 Regional Ground Water Project's ASR												
23	West Miami-Dade Reuse Feasibility Study												
24	Implement and update the WSE regulation schedule for Lake Okeechobee												
25	Lake Belt Storage Area Project seepage barrier protection												
26	Develop and implement rain-driven operations	152	1.20	Completed									
27	Change coastal wellfield operations	No additional costs beyond those listed in the CERP table (**Table 3**) in the Districtwide Water Resource Development Effort section											
	Subtotal	**152**	**1.20**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**152**	**1.20**
Recommendations to the CERP from the *Caloosahatchee Water Management Plan*													
28	Develop a Caloosahatchee River ASR pilot project	See the CERP subsection (**Table 3**) in the Districtwide Water Resource Development Efforts section											
29	Implement the C-43 Storage Project												
30	Complete the Southwest Florida Study												
Operational Recommendations													
31	Develop systemwide operational protocols and a periodic operational deviation process	0	1.00	0	1.00	0	1.00	0	1.00	TBD	TBD	0	4.00
32	Develop periodic operational flexibility	0	1.00	0	1.00	0	1.00	0	1.00	TBD	TBD	0	4.00
33	Develop a Lake Okeechobee vegetation management plan	150	0.20	150	0.20	150	0.20	150	0.20	150	0.20	750	1.00
	Subtotal	**150**	**2.20**	**150**	**2.20**	**150**	**2.20**	**150**	**2.20**	**150**	**0.20**	**750**	**9.00**
Consumptive Use Permitting and Resource Protection Projects													
34	Implement water reservations	0	4.00	0	4.00	0	4.00	0	4.00	0	TBD	0	16.00
35-39	Establish MFLs for priority water bodies and monitor for compliance	182	5.00	3,750	5.00	3,150	5.00	200	5.00	TBD	TBD	7,282	20.00
40	Implement CUP, rulemaking, and resource protection projects	0	5.00	0	5.00	0	5.00	0	5.00	TBD	TBD	0	20.00
	Subtotal	**182**	**14.00**	**3,750**	**14.00**	**3,150**	**14.00**	**200**	**14.00**	**0**	**0.00**	**7,282**	**56.00**
Other Water Resource Projects													
41	Develop a comprehensive water conservation program	See the Districtwide Water Resource Development Efforts section (**Table 1**)											
42	Conduct a seawater reverse osmosis treatment facilities feasibility study	0	0.40	200	0.40	TBD	TBD	TBD	TBD	TBD	TBD	200	0.80
43	Develop a reclaimed water system in northern Palm Beach County	140	1.20	Completed								140	1.20
44	Conduct an indirect aquifer recharge feasibility study	150	1.20	250	1.00	250	1.00	TBD	TBD	TBD	TBD	650	3.20
45	Conduct an evaluation of high volume surface water ASR testing in Taylor Creek	Currently not feasible; incorporated into the ASR pilot projects listed in the CERP table (**Table 3**) for further evaluation											
	Subtotal	**290**	**2.80**	**450**	**1.40**	**250**	**1.00**	**0**	**0.00**	**0**	**0.00**	**990**	**5.20**
	TOTAL	**3,457**	**27.1**	**8,313**	**25.70**	**7,413**	**25.20**	**3,613**	**22.70**	**413**	**0.20**	**23,209**	**100.9**

Summary of the Quantity of Water to Be Made Available by Implementation of the LEC Regional Water Supply Plan

Table 11. Water Made Available Through Implementation of the *LEC Regional Water Supply Plan* by FY 2002 and by FY 2006

	Recommendation	Estimated Water Made Available (MGD)	
		By FY02	By FY06
	Ongoing Projects from the LEC Interim Plan		
1	Regional Saltwater Intrusion Management	0.0	0.0
2	FAS Ground Water Model	0.0	0.0
3	Northern Palm Beach County Comprehensive Water Management Plan	0.0	0.0
4	Eastern Hillsboro Regional ASR Pilot Project	0.0	5.0
5	Hillsboro (Site 1) Impoundment Pilot Project	0.0	0.0
6	Lake Worth Lagoon Minimum/Maximum Flow Targets	0.0	0.0
7	Northern Broward County Secondary Canals Recharge Network	0.0	0.0
8	Southeast Broward County Interconnected Water Supply System	0.0	0.0
9	Broward County Urban Environmental Enhancement	0.0	0.0
10	Miami-Dade Water and Sewer Department Utility ASR Project	10.0	35.0
11	Biscayne Bay Minimum/Maximum Flow Targets	0.0	0.0
	Other Federal, State, or District Projects		
12	Critical Projects	0.0	61.0
13	Well Abandonment Program (from CWMP)	0.0	0.0
14	Saltwater Influence at S-79 (from CWMP)	0.0	0.0
15	Permitting Issues Associated with ASR Systems and Reuse of Reclaimed Water	0.0	0.0
16	Mobile Irrigation Labs	6.6	10.6
	CERP Projects		
17	CERP Projects that Affect the LEC Planning Area and the Caloosahatchee River Basin	0.0	0.0
18	S-155A	0.0	0.0
19	Everglades Hydropatterns within WCA-3-B	0.0	0.0
20	Everglades Agricultural Area Storage Reservoirs	0.0	0.0
21	L-8 Project	0.0	0.0
22	C-51 Regional Ground Water Projects ASR Facilities	0.0	0.0
23	West Miami-Dade Reuse Feasibility	0.0	0.0
24	Lake Okeechobee Regulation Schedule	0.0	0.0
25	Lake Belt Storage Area Projects	0.0	0.0
26	Everglades Rain-Driven Operations	0.0	0.0
27	Change Coastal Wellfield Operations	0.0	0.0
28	Caloosahatchee River ASR Pilot Project	0.0	0.0
29	C-43 Basin Storage Reservoir and ASR Project	0.0	0.0
30	Southwest Florida Study	0.0	0.0
	Operational Projects		
31	Systemwide Operational Protocols	0.0	0.0
32	Periodic Operational Flexibility	0.0	0.0
33	Lake Okeechobee Vegetation Management Plan	0.0	0.0
	Consumptive Use Permitting and Resource Protection Projects		
34	Water Reservations	0.0	0.0
35	Establish MFLs	0.0	0.0
36	MFL Criteria for Rockland Marl Marsh	0.0	0.0
37	MFLs for Florida Bay	0.0	0.0
38	MFL Recovery Strategies	0.0	0.0
39	MFL Monitoring Systems	0.0	0.0
40	Consumptive Use Permitting, Rulemaking, and Resource Protection Projects	0.0	0.0
	Other Projects		
41	Comprehensive Water Conservation Program	9.4	31.6
42	Seawater Reverse Osmosis Treatment Facilities	0.0	0.0
43	Reclaimed Water System in Northern Palm Beach County	0.0	0.0
44	Indirect Aquifer Recharge	0.0	0.0
45	High Volume Surface Water ASR Testing in Taylor Creek	0.0	0.0
	TOTAL	**26.0**	**143.2**

FUNDING NEEDS

During FY 2002 through FY 2006, it is estimated that the implementation of the regional water supply plans and the CERP will cost the SFWMD more than $936 million. The estimated cost is distributed as follows:

- Districtwide non-CERP projects - $4.1 million with 36 FTEs
- CERP Projects, including Critical Projects - $881 million
- *KB Water Supply Plan* - $4.2 million with 24.55 FTEs
- *UEC Water Supply Plan* - $3.8 million with 7.93 FTEs
- *LWC Water Supply Plan* - $19.8 million and 6.12 FTEs
- *LEC Regional Water Supply Plan* - $23 million with 100.90 FTEs

For the current fiscal year, FY 2002, the total SFWMD budget for water resource development projects and the CERP is estimated at $216 million. The estimated cost is distributed as follows:

- Districtwide non-CERP projects - $882,000 and 10 FTEs
- CERP projects, including Critical Projects - $208 million
- *KB Water Supply Plan* - $1.6 million with 9.20 FTEs
- *UEC Water Supply Plan* - $903,000 with 1.38 FTEs
- *LWC Water Supply Plan* - $1.6 million with 1.57 FTEs
- *LEC Regional Water Supply Plan* - $3.5 million with 27.1 FTEs

These costs do not include manpower requirements of CERP projects in the LEC planning area or the Caloosahatchee Basin. The time frames for implementation of the water supply plans vary. Some plans with few capital projects may be implemented fairly quickly. Other plans, such as the *LEC Regional Water Supply Plan*, which has many large capital projects, will take longer.

While the SFWMD must implement the plans, timing could change based on available funding for FY 2003 through FY 2006, and the specific projects could be refined or changed based on preliminary feasibility studies or pilot projects' results. As mentioned in the Introduction, costs of implementation for FY 2002 correspond with the agency's proposed budget for that year, and may be different from estimates in the actual plans.

SOURCES OF FUNDING

The SFWMD is under statutory requirement to implement the water supply plans (Section 373.0361, F.S.), yet the budget of the agency is taxed due to the implementation of the CERP. Local sponsors for these projects are being sought, and projects with local cost-share or sponsorship will be implemented sooner than those the SFWMD must fund from ad valorem sources and some federal and state grants. From year to year, timing of water resource development projects may change as additional funding sources are provided by local governments.

FDEP COMMENTS AND RESPONSES

The letters containing FDEP's comments and responses and the SFWMD's response are on the following pages.

Jeb Bush
Governor

Department of Environmental Protection

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

December 24, 2001

Mr. Henry Dean, Executive Director
South Florida Water Management District
Post Office Box 24680
West Palm Beach, Florida 33416-4680

RE: Water Resource Development Work Program

Dear Mr. Dean: Henry

Thank you for your Five-Year Water Resource Development Work Program, received November 13, 2001. Your document was prepared pursuant to the requirements of Section 373.536 (6)(1)4, F.S. The Department's review of the work program must include an evaluation of:

- *the work program's consistency with the furtherance of the district's approved regional water supply plans, and*
- *the adequacy of the proposed expenditures.*

Adopting the Regional Water Supply Plans was an important milestone in the history of water management. Just as important as developing the plan is making sure it is implemented appropriately. The Water Resource Development Work Program developed by your District provides a comprehensive review of the actions your District is taking to implement the water resource development component of your water supply plan. Your work program appears to be consistent with the District's Regional Water Supply Plans and the expenditures appear generally to be adequate. However, the Department has some related comments and concerns.

Water Conservation and Reuse

While we commend the District on including reuse and conservation strategies as part of their water resource development work program, these priorities do not appear to be adequately funded. We are pleased that the District has increased funding for Mobile Irrigation Labs, but we are concerned that the District proposes to operate the conservation program with only one FTE and $400,000/year out of a FY 2002 budget of approximately $728.6 million. We are also concerned that no funding of the conservation program is proposed for FY 2006. It also appears that in FY 2002 the District proposes to allocate approximately $2.5 million towards strategies with a reuse component. Conservation and reuse have enormous potential to help meet the water supply needs of the District, but more commitment is needed to realize the full potential of these programs. While we understand that it may not be possible to provide more funding during the

current fiscal year, we would like the District to increase its funding commitment for conservation and reuse in subsequent fiscal years.

Additionally, in the regional water supply plans, the District committed to develop a comprehensive Conservation Plan by September 2001 and to develop numeric efficiency goals for each major user/project area. Please provide us with an update on that effort.

Comparison to FY 2002 Adopted Budget

The total annual work program costs for FY 2002 do not directly correspond to the numbers provided in the program and activity spreadsheet of your recently adopted FY 2002 Budget. The work program indicates that $217 million will be allocated for the projects during FY 2002, yet the program and activity spreadsheet indicates that approximately $28.6 million will be allocated for Water Source Development. Please provide an explanation of the differences between the two numbers.

In conclusion, we would like to commend the District on the format of the report. It provides a comprehensive view of the projects and a good summary of the District's progress on the projects. However, we believe that the report should be amended to specifically address the concerns described above. Furthermore, it would be helpful if the District provided the total amount that has already been spent for each strategy. This will help us evaluate the District's progress toward implementing the water supply plans. If you have any questions, please contact Tom Swihart at (850) 488-0784.

Sincerely,

Janet G. Llewellyn
Deputy Director
Division of Water Resource Management

JGL/kpg
cc: Melissa Meeker, DEP, SED
Rick Cantrell, DEP, SFD
Tom Swihart, DEP
Sandra Howard, DEP
Matthew Morrison, SFWMD
Jane Bucca, SFWMD
Kathleen P. Greenwood, DEP
Karl Kurka, DEP
Herb Zebuth, DEP, SED
Rick Smith, Office of the Governor
Richard Orth, DEP, SFD

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RES 10-12 REF: 02-0027

January 29, 2002

Ms. Janet G. Llewellyn, Deputy Director
Division of Water Resources Management
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Ms. Llewellyn:

Subject: Water Resource Development Work Program

We have received your letter of December 24, 2001 regarding our Five-Year Water Resource Development Work Program. Thank you for your comments on the report. The South Florida Water Management District has given full consideration to the Department's suggestions and comments concerning the final Five-Year Water Resource Development Work Program.

We have recently re-directed existing staff to form a Conservation Section within the Water Supply Department. The goal of the Conservation Section is to administer implementation of conservation outreach and education, mobile irrigation labs, alternative water supply development, conservation grant funding and development of reuse.

Thank you again for your insightful comments concerning our Five-Year Water Resource Development Work Program. We look forward to further discussions with you and your staff concerning Water Conservation and Reuse.

Sincerely,

Henry Dean
Executive Director

c: Rick Cantrell, DEP, SFD
Kathleen P. Greenwood, DEP
Sandra Howard, DEP
Karl Kurka, DEP
Melissa Meeker, DEP
Richard Orth, DEP, SFD
Rick Smith, Office of the Governor
Tom Swihart, DEP
Herb Zebuth, DEP, SED

JTB

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RES 10-12

March 13, 2002

Ms. Janet Llewellyn, Deputy Director
Division of Water Resources Management
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Ms. Llewellyn:

Subject: Water Resource Development Work Program

As a follow-up to my letter of January 29, 2002, attached are responses to your concerns regarding the South Florida Water Management District's (District) FIVE-YEAR WATER RESOURCE DEVELOPMENT WORK PROGRAM.

We appreciate your positive comments on the format of the report and will make the noted revisions prior to presenting the final Water Resource Development Work Program to our Governing Board and will forward a copy of the revised document to your office.

If you have questions regarding this document, please contact Matthew Morrison, Director, Planning & Development Division, at (561) 682-2758 or by e-mail at mjmorris@sfwmd.gov.

Sincerely,

Henry Dean
Executive Director

HD/jb
Attachments:
(1) Copy of letter dated January 29, 2002
(2) Responses

Water Conservation and Reuse

Water Conservation: As stated in my January letter, a Water Conservation Section was formed in October 2001, and is now part of the Water Supply Planning and Development Division. This section consists of 8 Full Time Equivalents (FTE), with a diversity of positions encompassing economics, hydrogeology, environmental science, planning, and conservation.

In addition, there was concern that the November 2001 draft indicated no allocation for conservation in Fiscal Year 2006 (FY06). The first regional water supply plan completed by the District, the Upper East Coast Water Supply Plan, was adopted in 1998. The remaining plans, the Lower East Coast, the Lower West Coast, and the Kissimmee River Basin, were adopted in April 2000. An update schedule has been worked out with DEP staff. The UEC and KRB plans will be updated in 2004, with the LEC and LWC plans updated the following year 2005.

Mobile Irrigation Labs: The amount indicated in Table 1, "Funding for Districtwide, non-CERP efforts during FY 2002 – FY 2006" (page 7) incorrectly notes an amount for FY2006 for the line "Provide cost-share funding for MILs". As with conservation, this should not be included in this work plan. It will be addressed in the updated plans.

Water Reuse: Funding to support reuse in the FY2002 budget is focused on completing development of reuse master plans, feasibility studies, and development of pilot programs to identify the parameters and costs associated with higher uses of reclaimed water, in accordance with the water resource development recommendations contained in the completed four regional water supply plans in the District. These efforts, if determined feasible, will lead to construction of projects that will result in greater expenditures for reuse projects in the future.

Discussion of our efforts in water conservation and reuse would be incomplete without including projects funded by the District's Alternative Water Supply Grant Program. Though not a component of the water resource development work plan, reuse efforts have been significant. In the past five years the District funded a total of $25.7 million in alternative water supply projects, with $16.6 million of these funds spent on reuse projects.

Water Conservation Plan: The water supply plans indicate that a comprehensive water conservation plan will be developed by September, 2001. The recently-formed water conservation group will not only devise such a plan, but is developing criteria for efficiency and measurement methods to accurately determine the most effective water conservation methods for use in the SFWMD's regions.

Spending for Water Supply Strategies: Spending and staffing for the last two (2) years for the water resource development projects has been:

STRATEGY	SPENDING IN MILLIONS	FTEs
Surface water storage	17.0	36
Aquifer storage and recovery	2.3	2
Ground water	3.4	18
Conservation	1.6	1
Related Strategies	5.0	17

Comparison to the FY2002 adopted budget

Program and activity spreadsheets found in the August 1, 2001 Standard Format Tentative Budget Submission report, and updated to agree with the adopted FY02 budget, correspond to the definition found in 2.2 in the budget report guidelines.

Projects found in the water resource development work program are found in this list, but a perusal of the projects shown in the work program indicates that in addition to water resource capital projects, feasibility studies, surface water management projects, modeling, and other efforts are also included in the implementation of the water supply plans. A list of the activity codes that make up item 2.2 in the August 1 report is found in Appendix D of the report; 11 activity codes for D program (water management planning and implementation) and 36 P program Critical Everglades Restoration Project activity codes are listed. The work program includes all 68 activities in D program, as well as J program (coastal ecosystems restoration) aspects of regional water supply plan implementation. Thirteen D program activities are also found in 1.2 Research, Data Collection, Analysis and Monitoring.

This accounts for the large discrepancy between $28.6 million and $217 million for these two groups of activities.

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